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SECTOR 8 — CHART INFORMATION

SECTOR 8

CHILE—CABO TRES MONTES TO ESTRECHO DE MAGALLANES, INCLUDING THE PATAGONIAN CHANNELS

Plan.—This sector describes the coast from Cabo Tres Montes S to the W entrance of Estrecho de Magallanes, and the inner waters and channels from Golfo de Penas S to the S entrance of Canal Smyth.

General Remarks

8.1 See Pub. 124, Sailing Directions (Enroute) East Coast of South America for a description of the approaches to, and the waters of, Estrecho de Magallanes.

The SW coast of Chile, between Golfo de Penas and the Magellan Strait, is fronted by a succession of islands of considerable extent, between which are good navigable channels affording a smooth water route of about 300 miles. These channels are known as the Patagonian Channels.

This route is mostly used by vessels desiring to avoid the heavy seas and bad weather so often experienced on passing into the Pacific from the W end of Estrecho de Magallanes.

Most large high-powered vessels use the ocean routes between points, but smaller low-powered vessels find the Patagonian channels the best route to avoid weather. With care, the larger vessels can also use these channels.

In no case are these channels more than 5 miles wide, the average width being about 1.5 miles. In Canal Mayne, the navigable width is reduced to 0.2 mile and in Guia Narrows the width is about 0.3 mile wide, but navigation of these presents no difficulty or danger for larger vessels.

The charted route to be followed through the Patagonian channels is Messier Channel, English Narrows, Grappler Reach, Wide Channel, Concepcion Channel, Inocentes Channel, Guia Narrows, Sarmiento Channel, Victory Pass, Canal Mayne or Canal Gray, and Canal Smyth.

Winds—Weather.—Except where an opening occurs, the true wind is rarely felt, but it is forced by the high mountains into a kind of funnel, up or down into which it always blows. The prevailing wind is from the N, and sometimes blows with great fury, but in so confined a space there is never any sea sufficiently high to be dangerous to a vessel or even a boat. The principal feature in the weather here is not the strength of the wind, but the almost perpetual rain.

Day after day, there is this steady downfall, unless the vessel is so fortunate as to arrive in one of those rare breaks of fine weather which sometimes occur. Then it will seem as if this is one of the most interesting of navigable waters, with smooth sea, well-sheltered anchorages, and surrounded by the most glorious scenery.

As far as the rain is concerned, one season is as bad as another, but the warmth and length of daylight in the summer render that season far better for such navigation.

In these narrow channels, during the squalls which frequently occur, sharp hailstorms and snow flurries will be felt, even in summer.

In many of the countless narrow passages the wind follows the run of the passage, and has therefore only two possible directions. It may be reversed abruptly when there has been a large shift of wind direction over the open sea.

The most dangerous winds are the violent and unpredictable squalls. The occurrence of one or more of these in succession from the same direction is no indication that the next will not be from some widely different direction. Moreover, of two possible anchorages a few miles apart, the more open may well be the less subject to these squalls. These squalls, unlike most of the squalls which occur in tropical and temperate regions, depend largely, if not entirely, on the existence of strong winds or gales at sea or at a height of several thousand meters over the land. These strong winds generally prevail over an area of several thousand square miles. As they strike the rugged mountains of the archipelagos, they set up eddies of varying size and intensity. In a sheltered inlet, even where the general slope of the ground is fairly regular, the wind often changes greatly in speed and direction from minute to minute; such changes are generally due to circular eddies of distant origin. The strong high-level winds occasionally disappear for a few days when an anticyclone forms, and there is then a little respite from the violent squalls; but near the W coast the return to normal weather may be very sudden.

Ice.—There is little evidence of icebergs of Antarctic origin being encountered in the channels and inlets of Patagonia, and most of them are ice free throughout the year. There are, however, a number of glaciers which occupy the valleys at the heads of some of the more landlocked inlets. Most of these do not reach the sea, but some affect certain channels from time to time, and will be identified in the text. Ice is frequently met within Canal Wide.

Tides—Currents.—Local tidal and current features will be described in the text.

Depths—Limitations.—Generally, the Patagonian Channels are limited to vessels up to 50,000 grt and 220m in length.

The maximum permitted draft of vessels using Canal Mayne at LW is 7.3m.

Canal Gray, the alternative channel to Canal Mayne, can accommodate vessels up to 10.7m draft. Pilots for the channel are reportedly able to handle vessels up to 230m in length at their discretion, depending on tidal and weather conditions.

Angostura Inglesa is limited to vessels with a maximum length of 150m.

It is reported that vessels up to 240m in length and drafts up to 11m can use Canal Trinidad.

Pilotage.—Pilots for the Patagonian Channels are obtained at Valparaiso and Punta Arenas. Pilotage for all foreign vessels entering Chilean ports or navigating Chilean channels is compulsory.

Regulations.—See Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia for details on regulations pertaining to vessels in Chilean waters.

Patagonian Channels regulations for passing certain obstructions or stretches of the channel will be given with the description of the relevant feature the regulations apply to.

Upon approaching Canal Gray or Angostura Guia in good visibility, vessels should sound one prolonged blast.

A southbound vessel should on hearing the sound signal, or on confirming the presence of a northbound vessel, wait until the northbound vessel has passed.

In inclement or foggy weather and at night, vessels should maintain a listening watch on 500 kHz 1 hour before arrival, broadcasting their ETA at 10-minute intervals.

On sighting another vessel, contact should be made by VHF. If contact cannot be established, a watch should be maintained on 2182 kHz.

Caution.—As there has been no complete survey of the channels between Estrecho de Magallanes and the Golfo de Penas, the navigator is cautioned that, although the charts and directions may be considered sufficient guides by daylight, he must not trust too implicitly in them during thick weather, as in some instances the bearing from headland to headland are not strictly accurate, and the buoys and beacons are not to be depended on.

Golfo de Penas

8.2 The mouth of Golfo de Penas lies between Cabo Tres Montes, the N entrance point, and Archipiélago Guayaneco, 42 miles to the S. From its mouth the gulf recedes to the E for about 50 miles. There are many inlets and sounds in the gulf, but a large part of its shores are unsurveyed. The Patagonian Channels open into the S part of Golfo de Penas.

Caution.—Great care is necessary when navigating in the vicinity of the gulf, as a strong E set is experienced here. Winds of great force, which raise a very heavy sea, must be dealt with.

Golfo de Penas—North Shore

8.3 Cabo Tres Montes (46°59'S., 75°26'W.), the S extremity of Peninsula Tres Montes, has been [previously described in paragraph 6.42](#).

Cabo Stokes lies about 9 miles NE of Cabo Tres Montes and is the W entrance point of Golfo Tres Montes. The cape is rugged and dark in color. There are some above-water rocks near the cape and foul ground extends out about 0.3 mile from the cape. Good anchorage is afforded in Surgidero Stokes, 1.3 miles N of Cabo Stokes, 0.3 mile off the head of a small bay, in a depth of 22m. A shoal, with a depth of 4.7m, lies about 0.3 mile SSW of the berth.

Emergency anchorage, in a depth of 36m, may be obtained about 0.5 mile off the head of a sandy cove situated 2.5 miles N of Surgidero Stokes. This appears to be a better anchorage than Surgidero Stokes, but the cove has not been examined.

Golfo Tres Montes (46°50'S., 75°00'W.) is entered between Cabo Stokes and the SW extremity of Peninsula Forelius, 23 miles to the E. The shores of the gulf are very indented, and there are several inlets, flanked by high mountains. In the inner part of the gulf is Grupo Chaicayan, an extensive group of islands, islets, and rocks.

Puerto Barroso (46°50'S., 76°17'W.) lies on the SW side of Golfo Tres Montes, about 5 miles NNW of Cabo Stokes. Islotes Entrada and Roca Logan lie on the NE side of the entrance to Puerto Barroso. The harbor is perfectly safe and can be entered in the heaviest weather. Anchorage is available off a sandy beach on the harbor's W side, about 0.6 mile within the entrance, in depths of 18 to 20m, over a rocky bottom. Caution is advised when approaching this anchorage as extensive shoaling has been reported at this berth.

Nearly 2 miles within the entrance the port opens into a large and deep inlet, with two arms extending SW and SE 3.5 and 2 miles, respectively. Anchorage exists in nearly all parts of the inlet, with depths of from 37 to 55m in the W arm, except near the head, and 18.3 to 46m in the outer part of the E arm.

Tidal currents reach rates of 1 knot in the entrance and 3 knots in the basin.

8.4 Seno Hoppner (Fiordo Hoppner) lies in the NW corner of Golfo Tres Montes and is approached through Seno Holloway (Fiordo Holloway), and opens up W of Islas Marinas (Grupo Chaicayan) to a width of 5 miles. A deep inlet extends 7 miles to the SW of Seno Hoppner. Bajo Entrada, awash at times, lies S of the entrance to the inlet. Puerto Slight lies at the head of the inlet and affords anchorage, in a depth of about 28m, about 0.8 mile from the head. A second anchorage lies about 0.2 mile off the W shore, with a small pier bearing 206°, distant 0.4 mile, in a depth of 35m. It was reported the shoal at the head of the harbor was extending to the NE. A white sign-board beacon stands on the W side of the harbor.

Islas Marinas (Grupo Chaicayan), in the NW part of Golfo Tres Montes, extends 11 miles WNW from the SE end of Isla Crosslet, the largest of the islands, located 9.5 miles NE of Cabo Stokes. The islands can best be seen on the chart.

Seno Newman (46°32'S., 74°57'W.) lies in the NE part of Golfo Tres Montes. The inlet extends 13 miles NE between two ranges of wooded hills. The depths near the middle are too great for anchoring, but anchorage may be obtained near the shores. The inlet should not be entered without local knowledge.

Peninsula Forelius, 13 miles long and from 1.5 to 4 miles wide, forms the S shore of Bahia San Quentin. Peninsula Cirujano is connected to the E end of Peninsula Forelius by a sandy isthmus. Islas Purcell consist of one large island and several small ones. These islands are separated from the SW part of Peninsula Forelius by a deep channel 2 miles wide. Roca Tortuga lies in the middle of the channel.

8.5 Golfo San Esteban (46°57'S., 74°17'W.) is bordered on the S by San Javier Island, on the W by Isla Purcell, on the N by Peninsula Cirujano, and on the E by the mainland. A heavy surf breaks on the long sandy beach on the mainland, which curves around to the NW toward the entrance to the Rio San Tadeo.

Bahia San Quentin extends W for about 12 miles from the N part of Golfo San Esteban, between Peninsulas Forelius and Esmeralda. Seno Aldunate (Fiordo Aldunate) extends WNW for about 7 miles from the NE end of Bahia San Quentin. The shores of the bay are thickly wooded. Isla Arbolada lies in the middle of the entrance to the bay and can be passed on either side. Bajo San Quentin, in the middle of the W part of the bay,

has depths of less than 10m and a least depth of 3m. The shoal consists of sand, shells, and pebbles. The bay affords good anchorage with moderate depths and good holding ground.

The **Rio San Tadeo** (46°45'S., 74°12'W.) flows into the NE side of the entrance to Bahia San Quentin, where it is divided into two mouths by Isla del Diablo. A sandy beach extends E and W of it for many miles, the land being low and marshy and covered with stumps of dead trees. The mouth of the river is obstructed by a bar on which the sea breaks heavily and which cannot be crossed even by small craft, except at HW in very good weather. Within the bar, the river has depths of 2 to 4m.

Isla del Diablo, forming the NW side of the entrance to the Rio San Tadeo, is very low. The W end of the island is only 1.8m high, while the eastern and greater part is made up of mud brought down by the river.

Golfo de Penas—East Shore

8.6 Abra Kelly (46°59'S., 74°07'W.), in the NE corner of Golfo de Penas, is entered between Punta Armando and Punta Blanca, 2.5 miles to the ENE. Within the entrance the inlet divides into two arms. The S arm whose entrance is 1.7 miles S of Punta Blanca is of little importance. The N arm, close NE of Punta Blanca, forms Bahia Kelly inside its entrance point. The best anchorage in the inlet is in Bahia Kelly, in a depth of 45m, with Punta Armando shut in by Punta Blanca. Ventisquero San Quentin, a large glacier N of the anchorage, is a good landmark.

Isla Javier (47°06'S., 74°24'W.), which is separated from the mainland by Canal Cheap, is 11 miles long and 5 miles wide. The island is of good height and thickly wooded. There are two anchorages on the E side of the island, Surgidero Javier to the N and Surgidero Ignacio to the S. Surgidero Javier is the better of the two, being secure from the prevailing winds, with a depth of 31m, 0.4 mile from the shore. The shores of these anchorages are bordered with kelp, and surf often renders the shore inaccessible for a landing.

Seno Jesuitas lies with its entrance 7 miles E of the S point of Isla Javier. Isla Maldonado, in the middle of the entrance to the sound, makes the passage on either side very narrow. The S passage is the wider and safest of the two. The sound should not be entered without local knowledge. The sound contains a number of long inlets, none of which are of any importance to the mariner. Anchorage may be obtained on the NW side of Estero Benito, in depths of 20 to 40m, 3.2 miles E of Punta Monaguillo. Small vessels can obtain anchorage in Puerto San Salvador, a cove on the S side of the entrance to Seno Jesuitas.

Boca de Canales (47°30'S., 74°30'W.), on the SE side of Golfo de Penas, runs in a SE direction for about 11 miles and then divides into two arms, one turning to the E for 15 miles and the other to the S for 11 miles. They are merely deep and narrow arms of the sea, running between steep-sided ranges of mountains. The shores are rocky, affording neither coves or bights for shelter. A number of islets, rocks, and shoals lie on both sides of the entrance to Boca de Canales, and can best be seen on the chart.

Golfo de Penas—South Shore

8.7 Archipelago Guayaneco consists of Isla Byron and Isla Wager, as well as many small islands, islets, and rocks. It extends 22 miles W to E, forming the S side of Golfo de Penas.

Cabo Mogotes (47°44'S., 75°23'W.) is the W extremity of Isla Byron. Islets and rocks, both above and below-water, lie up to 3 miles off the island between the cape and the N end of the island, 12 miles ENE. Isote Medora, 2.5 miles N of Cabo Mogotes, is prominent from seaward.

Isla Wager lies close E of Isla Byron and can be identified by Monte Anson, which stands on the N side of the island, also by Monte Wager near the middle of the island.

Paso Rundle (47°43'S., 75°05'W.) separates Isla Byron from Isla Wager, and leads SSE for 8 miles between these islands to Paso Sur Oeste. The channel is only 0.2 mile wide, but is clear of dangers except at the N entrance.

Bahia Tarn lies between Archipelago Guayaneco and Peninsula Larenas on the mainland, 6.5 miles to the E, and is [described in paragraph 8.82](#).

Golfo de Penas to Golfo de Trinidad

8.8 Paso Sur Oeste separates Archipelago Guayaneco from Isla Juan Stuen. The SW part of the pass is obstructed by rocks, and at the S extremity of Isla Byron it is scarcely 1 mile wide. The channel, which has not been surveyed, is narrowed by islets, rocks, and shoals on both sides and the W end.

Cabo Bynoe (47°59'S., 75°18'W.), with the breakers and islands extending 5 miles from it, forms the NW entrance point of Canal Fallos. There is a clear narrow passage between the islands and the cape, but foul ground extends for nearly 3 miles to the NW of the islands.

Puerto Santa Barbara is situated about 5 miles WSW of Cabo Bynoe, and affords anchorage to small vessels. The anchorage is well-sheltered by Isla Breaksea, which lies close N. Local knowledge is necessary.

Roca Dundee (48°07'S., 75°41'W.), about 4 miles W of Cabo Dyer, the NW extremity of Isla Campana, is about 36m high and a good mark in the approach to Puerto Santa Barbara. There is a below-water rock, on which the sea always breaks, midway between Roca Dundee and Cabo Dyer.

Rocas Nimrod (48°24'S., 75°42'W.) lies 16 miles S of Roca Dundee. Puerto Nimrod, between Isote Torpedo and the coast of Isla Campana, affords anchorage to small vessels with local knowledge.

Canal Octubre is entered between Rocas Nimrod and Roca Promontorio, 4 miles to the SE. The channel trends E for 12 miles, thence S for 16 miles to Canal del Castillo. The W entrance to the canal is encumbered with rocks, but within there is a least depth of 11m in the fairway. The channel is tortuous and very narrow in places. Several inlets branch from the channel, but the area has not been fully explored and there are no known anchorages.

8.9 Punta Conglomerada (48°42'S., 75°38'W.) lies 16 miles S of the W entrance to Canal Octubre. Foul ground extends 5 miles NW and SW from the point. A narrow channel, entered close N of Punta Conglomerada, separates Isla Cabrales from Isla Patricio Lynch, it leads 17 miles to Canal Oc-

tubre. Monte Pardo is located 4 miles NNE of Punta Conglomerada.

Punta Dineley, the NW extremity of Isla Esmeralda, lies 12 miles S of Punta Conglomerada. Rocas Dineley lies at the outer end of foul ground which extends 4 miles NW from Punta Dineley. Bahía Dineley, the approach to Canal del Castillo from the W, lies between foul ground which extends E from Rocas Dineley for 5.5 miles to the S entrance point of Canal del Castillo, and foul ground extending 5 miles NW from the SW extremity of Isla Cabañas.

Canal del Castillo (48°45'S., 75°18'W.) is entered from the E end of Bahía Dineley and leads 25 miles ENE through the archipelago to Canal Fallos. The channel is clear of dangers, but the NE end is narrow. Local knowledge is necessary for navigating Canal del Castillo.

Canal Riquelme lies with its W entrance point about 10 miles S of Rocas Dineley. The canal separates Isla Covadonga from the W part of Isla Esmeralda. It is entered 2 miles NNW of Cabo Colmillo, between foul ground extending 1 mile off the NW end of Isla Covadonga and foul ground which extends 3.5 miles W from the SW point of Isla Esmeralda. The channel joins Canal Covadonga 11 miles ESE of the entrance.

Canal Covadonga (49°05'S., 75°27'W.) is entered 4 miles SSW of the entrance to Canal Riquelme. The W part of the canal is encumbered with reefs and is very intricate as far as the SE end of Isla Covadonga, 8 miles E of the entrance. It should not be entered without local knowledge.

Isla Western lies 3.5 miles SSW of Cabo Colmillo (49°03'S., 75°42'W.), the W extremity of Isla Covadonga. The island is flat and bare. Rocks and breakers stretch 1.2 miles N and 1 mile W of Isla Western and from the NW end of an area of foul ground extending ESE to the coast and S to Roca Maipo. A detached rock, with a depth of less than 2m, lies 1.5 miles NNW of Isla Western.

Islote Montague (49°13'S., 75°40'W.) lies in foul ground about 8 miles SSE of Isla Western. It forms the N side of the W entrance point to Golfo Ladrillero.

8.10 Golfo Ladrillero is entered between the foul ground that extends 1.5 miles S from Islote Montague and Grupo Vorposten, 8 miles to the S. The gulf extends 8 miles E and is clear of dangers, except those on each side of the entrance and the foul ground on the S side between Grupo Vorposten and Rompiente Stortebecker.

Canal Ladrillero is entered from Golfo Ladrillero between Punta Piedras (49°16'S., 75°28'W.) and the NW extremity of Peninsula Wharton, 2.5 miles to the S. The canal trends NE for about 28 miles to Paso The Knick, which connects to the S end of Canal Fallos. The depths in the fairway which lead past Isla Stubbenkammer, Isla Hansa, and Isla Staude are deep everywhere. The channel SE of these islands has not been surveyed. There are several inlets and smaller channels on both sides of Canal Ladrillero. A light and racon are shown from Punta Piedras.

Estero Desengano (49°21'S., 75°16'W.), on the SE side of Canal Ladrillero, extends SSE for about 15 miles. There is good anchorage at the head of the inlet for vessels with local knowledge, in a depth of 31m, mud. Estero Klippen, on the W side of the entrance to Estero Desengano, is narrow and encumbered with islets and rocks. SSE of Estero Klippen, four

small inlets have been reported to afford anchorage to vessels of moderate size.

Punta Piramide lies 2 miles W of the N end of Isla Stosch (48°58'S., 75°18'W.). The point forms the S entrance point of the E entrance to Canal Covadonga, which joins Canal Riquelme and affords a good passage to the ocean.

8.11 Canal Fallos (48°20'S., 75°10'W.) is the continuation of Canal Ladrillero N of Paso The Knick (48°57'S., 75°00'W.). The channel trends N for 29 miles to Puerto Jasmund, on the E shore, and then NNW for 31 miles to Cabo Bynoe, the NW entrance point of the canal. The S part of the canal has a least width of about 1 mile and its N part about 2 miles. Canal Fallos is deep throughout and is clear of dangers, except near the shore in places and at its N entrance.

This canal has the great disadvantage of not affording any anchorages near its N end to large vessels if meeting a NW gale when approaching Golfo de Penas. Within the canal there are many inlets and channels, some of which can be used by vessels of moderate size. The principal channels are Canal de Castillo, on the W side, and Canales Adalberto, Albatross, and Barbarossa, connecting with Canal Messier to the E. Many of the smaller channels and inlets have not been fully surveyed and should not be entered without local knowledge.

Puerto Kaiser (48°43'S., 74°50'W.), on the SE side of Canal Erhardt, affords anchorage 0.3 mile wide near its head, in depths of 15 to 22m.

Puerto Grande, on the W side of Canal Fallos, is entered 5 miles N of the entrance to Canal del Castillo. The cove is quite spacious and sheltered, but during the predominant NW winds, violent squalls descend from three deep ravines at its head. The cove is very deep, but cannot be recommended as an anchorage.

Seno Cruz del Sur (48°30'S., 75°04'W.) is entered 2 miles N of Puerto Grande and has three arms branching S, W, and N, 1.5 mile within its entrance. Puerto Maldonado, at the head of the N arm, affords the best anchorage in Canal Fallos, with depths of 29 to 45m, mud. The anchorage is well-sheltered and easy of access. When approaching the anchorage keep nearer to the W shore, so as to avoid a reef which extends into the middle of the N arm from an inlet on the E side of its entrance. The S and W arms are useless to navigation, as their entrances are rocky and foul.

Puerto Escampavia is a cove 2.5 miles NNW of the entrance to Seno Cruz del Sur. It is well-sheltered from all except NE winds, but is a little more than 183m wide. Small craft can obtain anchorage near the W shore, in depths of 6 to 9m, sand and stone, protected by a rocky point.

Seno Mac-Vicar is entered S of Punta Saliente (48°23'S., 75°08'W.). Isla Nestor, close within the entrance, divides the inlet into two arms. Brazo Sur, the S arm, extends 4.5 miles SW with a width of about 0.3 mile. Puerto Sporer, at its head, affords anchorage to vessels with local knowledge, in a depth of 20m, mud. Brazo Norte, 2.5 miles long, is narrow and difficult to navigate.

8.12 Canal Miramar (49°34'S., 75°30'W.) is entered between Punta Baja and the foul ground off the SW side of Isla Taggart. Foul ground on both sides of the entrance reduces its width to about 0.2 mile. As the channel is intricate, it should

only be entered by small craft with local knowledge. The channel trends E for about 6 miles and leads to the N end of Canal Picton. Puerto Nuevo is a small inlet in Isla Mornington near the E end of Canal Miramar and affords anchorage, in a depth of 27m, thick mud. The anchorage is best approached from Canal Picton.

Anchorage may also be obtained off the SE end of Isla Taggart, 5 miles NNW of Puerto Nuevo.

Cabo Pakenham, the NW extremity of Isla Mornington, lies about 5.5 miles SW of Punta Baja. Pico Spartan stands 3 miles ESE of Cabo Pakenham and is very prominent from seaward. Foul ground, showing breakers, extend 3 miles W from the cape. A rock, position doubtful and which breaks, lies 4.5 miles WSW of the cape.

Cabo Primero (49°52'S., 75°35'W.), the S extremity of Peninsula Corso of Isla Mornington, lies 12.5 miles S of Cabo Pakenham. The cape is a long low shelving point off which numerous islets and rocks extend 1.2 miles, there are breakers as much as 3.5 miles S and 4.2 miles ESE of the cape. This vicinity is exceedingly dangerous and should be avoided. A light and racon are situated at the cape.

Golfo Trinidad—North and South Shores

8.13 Bahia Bossi (49°50'S., 75°26'W.) is entered between Cabo Primero and Cabo Gamboa, 10.5 miles to the E. The bay is shallow and encumbered with bare islets and rocks. During SW gales, breakers extend the whole distance across the bay. Several hills, tower-shaped and thickly wooded, rise from the shores of the bay.

Rocas Seal are located about 3.5 miles S of Cabo Gamboa. The sea always breaks over three of the above-water rocks. A rock, which dries, lies 0.4 mile SE of Rocas Seal and a below-water rock lies 1 mile E. Rocas Seal can be passed on either side, but the S passage is wider and recommended.

A ridge extends across Golfo Trinidad at the W entrance to Canal Trinidad, but has not been thoroughly examined. The least charted depth of 26m lies 7 miles S of Cabo Primero and there are a number of extensive areas with depths of less than 30m.

The S shore, from the W entrance point to Cabo Hawksworth (50°05'S., 75°23'W.), is fronted by Rocas Vidette, consisting of many low islets and rocks, some of which lie nearly 3 miles offshore. Numerous breakers have been observed extending 3 miles NW of Cabo Rugged and probably some rocks remain to be charted. This part of the coast should not be approached within 5 to 6 miles.

Cabo Rugged (50°02'S., 75°23'W.) is a detached mass of rock, of a pyramidal form, at the base of Cerro Tudor. The cape is not easy to distinguish from W, but from S or N it appears as a round-topped island; it can be further identified by a peculiar shoe-shaped mass of rock on the slope of Sierra Tudor. Pico Horn stands 1 mile E of Cabo Hawksworth and resembles a horn. It is very prominent from the NW.

Canal Trinidad

Canal Trinidad provides an exit to the Pacific for those vessels too long to pass through, or do not wish to wait for slack water at Angostura Inglesa. The canal trends ESE from Golfo

Trinidad for about 19 miles and then SE for about 15 miles, where it intersects with Canal Concepcion. The canal is deep and free of dangers in the fairway. The S shore of the canal is bordered by high hills and mountains, and is indented by several inlets, most of which are deep. The N shore is comparatively low and wooded, but high hills rise 1 or 2 miles inland. Most dangers are marked by kelp, but this should not be relied on.

The weather and sea experienced in the approach to the canal are generally more moderate than farther S. Therefore, the canal offers a favorable alternative route to that through the W approach to Estrecho de Magallanes.

Canal Trinidad—North Side

8.14 Puerto Alert (49°52'S., 75°14'W.) is easy of access and affords good anchorage. The entrance to the inlet is easily identified by Punta Castle, a steep white limestone cliff, with a wooded summit. Roca Fairway is bare, rugged, and lies in the middle of the entrance. Rompientes Challenger is a group of rocks, above and below-water, and lie about 0.8 mile SW of Roca Fairway. Puerto Alert inlet consists of islets and rocks that can best be seen on the chart. A disused light structure stands near the middle of Roca Fairway.

Anchorage may be obtained in Puerto Alert, in depths of 20 to 42m, mud or sand, between Islote Knocker and Punta Carrant, 1.7 miles to the NNW. A good berth for a large vessel is in a depth of 40m, mud, with Roca Fairway seen between Isla Knocker and Isla Button, bearing 162°, and the small islet 183m N of Punta Fielden, 1.7 miles NNW of Punta Castle, bearing 090°.

Fondeadero Mackerel, at the head of the inlet, is a good anchorage for small vessels, it has good holding ground, in depths of 20 to 30m, mud. The approach channel is narrow and tortuous, and is not recommended for vessels drawing more than 3.4m.

Islas Van lie 3.7 miles SSE of Roca Fairway and consists of a number of islets and rocks extending 1 mile N and 3 miles WNW. Vessels should not attempt to pass between the islets. Punta Sakkarah lies 2 miles N of Islas Van and is on the W side of the E entrance to Canal Picton.

Canal Picton

8.15 The canal is entered from Canal Trinidad, E of Punta Sakkarah, the SE end of Isla Mornington. The canal extends 38 miles to Golfo Ladrillero and has an average width of 1 mile and is deep for the first 30 miles.

The E shore of the canal is bold and formed by Peninsula Wharton and several small islands. A number of inlets penetrate the peninsula. The W shore is also bold, with a few coves and Estero Payne, a small inlet, N of Isla Mornington. The canal should only be used by vessels with local knowledge.

Paso Picton (49°26'S., 75°27'W.), the narrowest part of Canal Picton, has a least depth of 9m over a width of 0.1 mile. During W and NW winds, the passage should not be used by vessels drawing more than 7.6m.

Puerto Payne (49°42'S., 75°16'W.), off the entrance to Estero Payne, is sheltered from W winds and affords good anchorage out of the tidal currents. Hills on each side serve to

identify the entrance. Estero Payne is generally shallow, and boats may ground in many parts on the W side of Canal Picton. Punta Verde, the N entrance point, is steep-to on its E side but has some rocks close S of it.

Anchorage is available, in a depth of 15m, sand and shells, with Punta Verde bearing 000°.

Puerto Beresford is in the N part of Bahía Beresford, on the E side of the canal. Anchorage may be obtained in the NE corner of the port, in depths of 10 to 12m, mud.

Canal Trinidad—North Side (continued)

8.16 Islas Malaspina (49°57'S., 75°01'W.) lies between the S entrance to Canal Picton and the entrance to Brazo del Norte, and consists of many islets and rocks extending 2 miles E and W. The S side is free of dangers and can be passed at a distance of 0.5 mile.

Brazo del Norte (Fiordo del Norte) is entered to the E of Islas Malaspina. The inlet extends 23 miles N, then 18 miles NE. On both sides of the inlet there are many deep arms, four of which offer anchorage to small vessels. There is anchorage 2 miles within the entrance to Seno Parque, which branches E 8 miles from the head of the inlet.

The E shore of Brazo del Norte is backed by lofty mountains and the W shore is low. Monte Catedral is a prominent peak on the E side of the inlet and is usually hidden by clouds, but in clear weather it is visible from Golfo Trinidad.

Islitas Antonio (50°01'S., 74°52'W.) lies on the E side of the entrance to Brazo del Norte, and consists of a chain of rocks and islets. Islotes Petley lie about 2.5 miles SSE of Islitas Antonio. Isla Burges lies about 2 miles ESE of Islotes Petley. The channel N of this island is not navigable.

Isla Topar divides the E entrance to Canal Trinidad into Paso Caffin and Paso Brassey. The shores of the island are free of dangers, except close off its N point and part of the NW coast. Bahía Loveless, on the W side of the island is deep, but open to the prevailing W wind. Paso Brassey leads N of Isla Topar and is deep with no known dangers. Paso Caffin leads S of Isla Topar and is also deep. Isla Medio shows a light from a tower, 8m high, on the W extremity of the island.

Canal Trinidad—South Side

8.17 Punta Brazo Ancho (50°09'S., 74°46'W.) is the NE extremity of Isla Madre de Dios, and borders on the S side of Paso Caffin. Monte Vereker is prominent and lies 1.2 miles to the NW. Islotes Mabel lies close off Punta Brazo Ancho.

Islotes Redbill lies 6 miles NW of Punta Brazo Ancho, and consists of a group of rocks and low islets off the entrance to Seno Delgado. There is foul ground between the islets, but the fairway N of them is free of dangers and they can be passed at a distance of 0.5 mile.

Seno Delgado (50°09'S., 74°51'W.) lies 2 miles SE of Punta Dinwoodie (50°04'S., 74°57'W.). The inlet can be identified by Cerro Pan de Azúcar, 1 mile S of Punta Dinwoodie. The inlet is not suitable as an anchorage for vessels of moderate size.

Isla Pilot, 3 miles NW of Punta Dinwoodie, is one of the most prominent features in Canal Trinidad. The island is the largest and highest in the canal. Cabo Candelaria is the NE

extremity of the island and appears as a conical hill, wooded at the base only.

Puerto del Morro (50°04'S., 75°01'W.) is an indentation on the E side of Isla Pilot and is fronted by Isla Grant. The harbor is about 1 mile long and from 0.1 to 0.2 mile wide; depths are from 11 to 34m over a bottom of mud. Though safe in fine weather, the anchorage is subject to squalls which blow with extreme violence in bad weather. The NE entrance, which is recommended, is 91m wide, with a least depth of 11m in the fairway. The most sheltered berth is in a depth of 24m, sand and rock, with the SW extremity of Isla Grant bearing 162° and the NW extremity bearing 058°.

Caleta Cockle, 3.8 mile S of Cabo Candelaria, is a snug anchorage for vessels up to 50m long and a 4.6m draft. It is largely free from the squalls experienced at Puerto del Morro. Local knowledge is required.

Islas Hernando (50°02'S., 75°05'W.), an island and a number of islets and rocks, lie in the entrance to Seno Lamero. The island has a remarkable square cleft in the summit and slopes down to a low projecting point on the N shore, which is free from off-lying dangers. A light, 6m high, is exhibited on the N point of the island. There is no anchorage between these islands.

Seno Lamero extends to the SE for about 7 miles and is used by boats only. Near the NW entrance are two conspicuous peaks, Monte Silvertop and Monte Graham, the former composed of limestone and the latter has a black summit.

8.18 Puerto Rosario (50°01'S., 75°09'W.) lies about 2 miles W of Seno Lamero and has general depths of 35 to 46m. The best anchorage is in 35m, with Punta Short bearing 297°, and the E extremity of Isla Baker bearing 038°. The space here is confined, but it is sheltered from furious squalls.

Seno Wolsey, about 4 miles W of Puerto Rosario, is a deep fjord 3 miles long in a S direction and about 0.5 mile wide. East of this inlet, 1.5 miles distant, is the entrance to Seno Cranmer. These inlets are connected on the SW side of Isla Latimer by a channel which has numerous islets and rocks in it. There is no ship passage between the two inlets and Seno Cranmer affords no anchorage. Seno Wolsey affords an indifferent anchorage, in depths of 16 to 31m, rock, among a number of islets and rocks at the NW end of the channel SW of Isla Latimer. This anchorage is subject to violent squalls and a bad holding ground.

Puerto Henry (50°00'S., 75°20'W.) is entered between Islotes Seymour and Islote Low, the E islet of Islotes Arragon, 0.7 mile to the WSW. The inlet is somewhat restricted and is only suitable as a temporary anchorage in good weather. During storms the squalls are severe and a heavy swell runs in.

Cabo Boleyn lies about 0.3 mile W of Islote Low. A main light is shown from a tower, 8m high, standing on the cape. A racon is situated at the light tower.

Anchorage may be obtained, in depths of 13 to 25m, sand, with fair holding ground, 0.2 mile N of Punta Bluff, with Islote Low bearing 009°, distant 0.5 mile.

Golfo Trinidad to Bahía Salvación

8.19 Estuario Barros Luco (Fiordo Barros Luco) (50°09'S., 75°17'W.) is entered between Islote Redonda

(50°08'S., 75°25'W.) and Cabo Hawksworth, 3 miles NNE. It extends 13 miles ESE and is from 1 to 2 miles wide. The inlet is deep, with two good anchorages and several coves in its shores. When making the inlet, the first objects seen will be Cabo Rugged, Islotes Rugga, and Cabo Vertical with its conspicuous white cliffs. The inlet leads to a large bay in which lie the Islas of Ramon and Renato.

Grupo Fortunata lies 5.5 miles W of Estuario Barros Luco and consists of two small islets. Below-water rocks and foul ground extend 1.5 miles NNW from the islets.

Seno Desconocido (50°15'S., 75°24'W.) lies about 6.5 miles SSE of Grupo Fortunata. The inlet extends 2.5 miles to the E and consists of some above-water rocks in the middle of its inner part, which reduces the width of the channel to 183m.

Between Seno Desconocido and Cabo North, 9.5 miles to the S, the coast is steep and foul, and has not been completely surveyed. There are a number of below-water rocks and small islets up to 3 miles off it.

Canal Oeste is entered between Cabo North (Head) and Punta Sur, 5 miles S. Cabo North is the S extremity of Isla Tarlton, which extends 6 miles N, and is separated from the SW part of Isla Madre de Dios by a narrow channel that is unsurveyed. Isote Conejo (50°28'S., 75°28'W.) lies between Cabo North and Punta Sur. A reef, which breaks, extends 2.5 miles W and 4 miles NW from Isote Conejo.

Paso Metalero, the S approach channel to Canal Oeste, lies between Isote Conejo and Roca Camila. Paso Goleta, the N approach channel, lies between Isote Conejo and Cabo North. Vessels should only use the S channel when entering Canal Oeste.

Seno Eleuterio (50°22'S., 75°21'W.) extends 10 miles from Cabo North and Isla Angel, 2.5 miles E. The inlet is very foul and unfit for navigation. The inlet connects with Seno Contreras through Bahia Corbeta Papudo, 5 miles within the entrance.

Seno Contreras is entered between the foul ground extending SE from Isla Angel and Isote Entrada, 0.7 mile SE. The inlet is about 10.5 miles long and free of dangers in the fairway. Isote Entrada shows a light. A beacon stands close off the N entrance point of a small inlet on the E side of Seno Contreras. Isla Guarello and Isla Angel form the S half of the W shore of the inlet.

It is reported that an aeronautical radiobeacon is situated on Isla Guarello.

Punta Garate, the NE extremity of Isla Guarello, lies 4.5 miles NNE of Isote Entrada. Isote Bascunan, 183m long, lies 1 mile ENE of Punta Garate. A light is shown from the S end of the islet.

Bahia Corbeta Papudo (50°22'S., 75°20'W.) is located on the N shore of Isla Guarello, about 2 miles WSW of Isote Bascunan Light. Range lights and beacons lead to the anchorage and a small concrete pier on the SW side of the bay.

8.20 Guarello Ore Terminal (50°22'S., 75°20'W.) is situated on the SW shore of Bahia Corbeta Papudo. The terminal is used by ore carriers loading limestone from a quarry nearby. The approach is through the outer part of Seno Contreras, then through Bahia Corbeta Papudo.

Vessels up to 200m in length and a 9.7m draft can be accommodated.

Winds from NW can make berthing difficult. Berthing and unberthing of vessels are not carried in winds above force 3.

Depths—Limitations.—The berth consists of a short concrete loading pier projecting from the shore, 780m WSW of Baliza Este. The tower of a loading appliance on the pier has a white stripe on the upper part of its base.

Three short concrete piers project from the shore 25m NW, 25m SE, and 55m SE of the loading pier, respectively. A hauling-off buoy lies 180m E of the loading pier. An underkeel clearance of at least 0.6m must be maintained during loading.

Pilotage.—Pilotage is compulsory. The pilot remains on board during loading. Tugs are not available. The terminal is equipped with VHF.

Anchorage.—The recommended anchorage for vessels waiting to berth at Guarello Ore Terminal is in depths of 25 to 50m, stones and pebbles, with Isote Bascunan Light bearing 073°, distant 0.4 mile. At this berth, vessels have ridden out NW winds of force 7 to 8 in safety.

Caution.—Grupo Guia is a chain of many small islets and below-water rocks. These islets lie close to the S edge of a large area of foul ground extending S from the N shore of Canal Oeste. A light is shown from Isote Guia.

8.21 Seno Palo (50°30'S., 75°16'W.) is the largest inlet on the S side of Canal Oeste, and is free of dangers. Near its head there is a landslide on the E side, where the inlet widens and depths increase to 40m. There is anchorage in the middle of the channel with the ends of the landslide bearing 056° and 108°, over a bottom of hard mud. The berth is well-sheltered from E and W winds and the swell does not reach it. The berth is used as a temporary anchorage for medium-sized vessels requiring shelter from bad weather in Canal Oeste.

Puerto Caracciolo (50°28'S., 75°11'W.) lies on the SW side of Isla Caracciolo. Anchorage may be obtained in the middle of Puerto Caracciolo, in a depth of 36m, gravel, 0.5 mile SE of Punta Santa Rosa, the NE extremity of Isla Santa Rosa. There is a second anchorage, in a depth of 25m, 0.1 mile ENE of Punta Santa Rosa.

Canal Pasaje is located on the N side of Canal Oeste, about 2.5 miles E of Puerto Caracciolo. The canal has not been surveyed, but is reported to be suitable for small craft. A shoal, with a depth of 12m, marked by kelp, lies in the middle of the entrance.

Canal Oeste, on its E end, is entered from Canal Concepcion, between Punta Anunciada and the S extremity of Isla Escribano. A light is shown from Punta Anunciada.

8.22 Cabo West Cliff (50°40'S., 75°31'W.) is located about 10 miles SSW of Punta Sur, the S entrance point to Canal Oeste. The cape is the W extremity of a promontory forming the N side of an inlet, at the head of which is Puerto Morales. The cape consists of a remarkable dark-colored cliff, the top of which is nearly level and a waterfall which is visible a fair distance.

Puerto Morales lies in an inlet 5 miles E of Cabo West Cliff. The entrance is bordered by dangers marked by breakers, and has a navigable width of 0.5 mile. Below-water rocks extend 0.5 mile from the N shore. Roca Negra, above-water, lies in the middle of the channel, 0.7 mile from the head of Puerto Morales. Vessels with local knowledge may obtain anchorage in the middle of Puerto Morales, with good holding ground, in

a depth of 8m, mud, with Roca Negra bearing 308°, distant 0.3 mile. The swinging radius is 0.3 mile.

Islote Yunque (50°44'S., 75°28'W.) is located about 5 miles SSE of Cabo West Cliff. A rock, with a depth of less than 2m, lies 1.5 miles W of the islet. Foul ground extends 2 miles NW from the islet. Roca Sur, awash, is a detached rock lying 0.5 mile N of this foul ground. Breakers have been seen 1.5 miles SW of this rock.

Rocas Scout is a group of above-water rocks, on which the sea breaks with great violence, that lie about 6 miles SSW of Islote Yunque. It is common to see these rocks covered with seals.

8.23 Cabo Ladrillero (50°49'S., 75°19'W.) is the S extremity of Isla Duque de York and forms the N side of Bahía Salvacion and the W entrance to Canal Concepcion. The Cape lies in foul ground and should be given a wide berth.

Bahía Salvacion is exposed from the W and is encumbered by Roquerio Davila and other dangers. Canal Farrel is entered at the head of Bahía Salvacion, and separates Isla Farrel from Isla Hanover. It extends 10 miles E and is narrow in places. The canal then turns N for 14 miles, where it unites with Canal Inocentes. Many arms and inlets branch off from Canal Farrel, but the whole area is unsurveyed.

Canal Concepcion is entered between Cabo Ladrillero and the S extremity of Isla Donas, 12 miles E. The S part of the canal separates the NW end of Archipelago de Hanover from Isla Duque de York and extends to Punta Anunciada, the E entrance point to Canal Oeste. The best anchorage in the S part of Canal Concepcion is Puerto Shergall, 6 miles NNE of Cabo Ladrillero. The inlet can be identified by Isla Negra and Pico Shergall, 1.5 miles NW. The inlet is narrow and has a sharp bend, and there are several dangers. The anchorage is near the head of the inlet, in a depth of 22m, mud, good holding ground.

Seno Francisco (50°35'S., 75°16'W.) is entered 6.5 miles N of Isla Negra, extending 5.5 miles to the NW. The inlet is reported to afford anchorages in a number of places over a bottom of mud. When entering it is necessary to keep the SW shore, in order to avoid shoals lying off the opposite shore. Local knowledge is required.

Bahía Salvacion to Estrecho Nelson

8.24 Isla Solar (51°00'S., 75°00'W.) lies with Punta Stokes, its SW extremity, 15 miles SE of Cabo Landrillero. Isla Aristides lies close NE of Isla Solar. Both these islands are high and barren and are separated from Isla Hanover by Canal Santas, which is narrow and foul. Foul ground extends 2 miles S from Isla Solar.

Canal Elena is entered 4 miles SE of Punta Stokes and extends 5.5 miles NE, thence 6 miles SW to join Canal Ignacio. Paso Anao, is the narrowest part of the canal and is free of dangers. Puerto Queto, on the N side of the canal 4 miles NE of the W entrance, affords anchorage to small vessels at the head of the small inlet.

Canal Ignacio is entered between Isla Solar and Isla White Horse, 9 miles to the SSW. The canal has a least width of 1 mile for the first 8 miles, but N of Isla Armonia it is narrow and intricate, making it impassable except for small craft.

Isla White Horse (51°09'S., 75°06'W.) lies on an extensive area of foul ground. The island is high on both ends and appears as two islands when seen from a distance. This is an excellent mark, visible from a distance of as much as 50 miles. On the E side of the island is a small cove which affords anchorage to small vessels with local knowledge, in a depth of 22m, sand, good shelter from all winds.

Canal Guadalupe is entered between the foul ground S of Isla White Horse and Isla Augusta, 2.3 miles S. The canal extends 7 miles ENE between Isla Dagnino and Isla Valenzuela. The canal continues E, separating Isla Armonia from Isla Jorge Montt, and connects with the N end of Canal Castro. Caleta Patos lies close within the W entrance of the canal and affords anchorage to small vessels with local knowledge, in a depth of 26m, sand and gravel.

8.25 Canal San Blas (51°14'S., 74°55'W.), between Isla Agustin and Isla Dagnino, is entered 1.5 miles E of Isla Augusta (51°15'S., 75°05'W.). The channel extends 6.5 miles E then turns SW and S, on the W side of Isla Jorge Montt, where it is narrow. The canal connects with Estrecho de Nelson E of Isla Diego de Almagro. Paso Pascua connects Canal San Blas with Canal Guadalupe.

Isla Duncan lies 6 miles WSW of Isla White Horse. Isla Conica lies 0.5 mile S of Isla Duncan. Foul ground, over which the sea breaks in stormy weather, extends 1.5 mile SSE from Isla Conica.

Arrecife Cordillera, a reef with a depth of less than 2m, lies 8 miles NNW of Isla Duncan. The sea breaks violently over this isolated reef.

Punta Huemul (51°16'S., 75°07'W.) lies 6 miles S of Isla White Horse. Foul ground extends almost 2 miles off the N and W side of the point. The point forms the N extremity of Isla Diego de Almagro.

From Punta Huemul the coast of Isla Diego de Almagro trends 22 miles SSW to Cabo Santa Lucia. This stretch of coast should be given a wide berth, as foul ground extends up to 1 mile offshore.

Cabo Jorge (51°39'S., 75°17'W.) is the S extremity of Isla Diego de Almagro and forms the N entrance point of Estrecho de Nelson. Monte Lucia rises 3 miles N of the cape.

Estrecho de Nelson

8.26 Estrecho de Nelson (51°42'S., 75°07'W.) is entered between Cabo Jorge and Cabo Isabel, 12 miles SSE. The strait extends 44 miles ENE to Paso Tarleton, which leads to Canal Sarmiento. The strait is deep, and easy to access from the W, but vessels should keep N of its center.

The strait is reduced 15 miles within the entrance, to a width of 4.5 miles between Cabo Charlton, the N extremity of Isla Contreras, and Cabo Virtudes, the S extremity of Isla Virtudes. East of these capes the strait opens out into an extensive basin, divided into channels and passages by numerous islands, islets, and rocks. Estrecho de Nelson, especially its E part, is imperfectly charted and should be navigated with the utmost caution.

Estrecho de Nelson—South Shore

8.27 Rocas Bahamonde (51°45'S., 75°11'W.) lies in the entrance of Estrecho de Nelson, about 4 miles NNW of Cabo Isabel. It consists of three below-water rocks on a reef which extends 2 miles N. The rocks only break in bad weather. Roca Milward, with a depth of 2m, lies 2.5 miles NE of Rocas Bahamonde, and breaks in bad weather.

Canal Vidal Gormaz is entered 1 mile W of Punta Lucas (51°40'S., 74°55'W.). Islets and rocks extend 0.5 mile off the point. Seno Vargas is entered about 7.5 miles S of Punta Lucas. Caleta Torres, on the W side of Canal Vidal Gormaz, affords anchorage, in a depth of 30m, but is not recommended as the depths are great and the bottom is rocky. Caleta Lopez, on the W side of the narrow part of the canal, affords anchorage, in a depth of 28m, off its S side.

Canal Noqueira is entered 5 miles ESE of Cabo Charlton between some islets close off the NE end of Isla Contreas and Islotes Verdejo, 1.5 miles E. Puerto Cornejo, on the W side of the canal, is entered 1.5 miles SW of Isla Sombrero (51°43'S., 74°45'W.) and extends 2 miles SW. Roca Tinta lies in the entrance, but is well-marked by kelp. Anchorage may be obtained, in depths of 20 to 25m, with a prominent beach bearing 240° and Isote Ester bearing 025°. To reach the anchorage, pass 183m off Punta Octavo the S entrance point, and E of Isote Ester. The swinging radius is 0.3 mile and it is possible to lie to a single anchor.

Estrecho Nelson—North Shore

8.28 Puerto Diego de Almagro (51°36'S., 75°10'W.) is entered about 5 miles ENE of Cabo Jorge. It affords temporary anchorage for small vessels, but should only be used in good weather; local knowledge is required. The best berth is in the entrance, clear of a rock awash lying off the NE entrance point. The head of the harbor is encumbered with rocky islets.

Cabo Virtudes, 11 miles ENE of Cabo Carolina (51°38'S., 75°12'W.), is high and steep with some white patches on its lower part which can be seen from a considerable distance. Several above-water rocks lie on a bank, extending 0.5 mile SW of the cape.

Puerto Virtudes (51°31'S., 74°54'W.) lies on the E side of Isla Virtudes and is the best sheltered harbor in the area. The harbor is divided into three coves, with an anchorage in each one. The outer anchorage has a depth of 36m in its center. On the W side of the outer anchorage is a passage 137m wide, which has a depth of 22m. North of this anchorage is the inner cove, where small vessels can anchor, in a depth of 11m.

Estrecho de Nelson—East Part

8.29 Grupo Lobos (51°33'S., 74°44'W.) lies 5 to 12 miles E of Cabo Virtudes. The W and largest island of the group rises to a very prominent hill, which is easy to identify from a distance. A reef extends 1 mile W and N and 1.5 mile SW from this island, and is usually marked by breakers. Islas Cueri-Cueri lie 2.5 miles SE of Grupo Lobos.

Canal Uribe is entered from the N, about 12 miles ESE of Cabo Charlton. The entrance is about 2 miles wide between Cabo Dispatch (51°42'S., 74°31'W.) and Cabo MacPherson,

the NE extremity of Isla Torres. The fairway is nearer Islas Rennel, and E of all the islets lying near mid-channel. Navigation of the channel is safe and easy, as the depths are considerable and the few dangers are mostly visible. Abra Honda is a small bay on the W side of Islas Rennel, 8 miles SSE of Cabo Dispatch. Small vessels can find anchorage in the bay on its N side. Canal Smyth, on the NE side of Islas Rennel, will be [discussed beginning in paragraph 8.34](#).

Grupo Gomez Carreno (51°39'S., 74°19'W.) lies, with Isla Alfredo, the W islet, 6.7 miles NE of Cabo Dispatch. The group is separated from the islets and rocks off the W end of Isla Piazzzi by Paso Heywood, a channel 1.5 miles wide. This channel should not be entered without local knowledge.

Islas Angelotti, 8.5 miles NE of Cabo Dispatch, are separated from Grupo Gomez Carreno SE by a channel 1.5 miles wide. An isolated rock lies 2.5 miles NNE of the islands. Islotes Sin Nombre lie 7 miles SW of Cabo Kendall (51°28'S., 74°07'W.), the S extremity of Isla Vancouver; 2.5 miles NE of these islets is Grupo Lopez, with Grupo Becerra 0.5 mile farther N. These three groups are surrounded by foul ground.

8.30 Paso Tarleton (51°28'S., 74°07'W.), between Cabo Kendall and Punta Oeste, leads into Canal Sarmiento. Islotes Loco form a small group 2.5 miles SSW of Cabo Kendall. There is a shoal 2.5 miles WSW of the cape. Surgidero Relief lies among some islets close off Isla Vancouver, 1.7 miles NW of Cabo Kendall.

Grupo Carmela lies 3.5 miles NE of Grupo Lobos. Midway between these groups is Isote Negro (51°29'S., 74°38'W.), which is black in color. Grupo Solari is separated from Grupo Carmela by Canal Elena, which has a least width of 1.2 miles. Monte Richard and Monte Coronel Madrid, on the two larger islands, are prominent.

Canal Castro (51°22'S., 74°28'W.) extends NE from the W end of Grupo Lobos for 25 miles to Paso Sharpes. The canal has a least width of 2 miles. The channel is very deep and a straight course can be steered throughout, however, caution should be used due to the imperfect nature of the survey. The N end of Canal Castro leads into the S end of Canal Esteban, between Isla del Medio and the NW extremity of Isla Vancouver.

Canal Esteban extends 25 miles from Isla del Medio to the NW end of Canal Sarmiento, and has a least width of 1 mile at the N end. The canal is reported to be deep and clear of dangers, but has not been surveyed. It should not be used without local knowledge.

Estrecho Nelson to Golfo Sarmiento

8.31 Isla Beagle (51°55'S., 75°08'W.) is a precipitous grayish-colored island, lying 5.5 miles S of Cabo Isabel. It can be seen at a distance of 10 miles. Rocks, with depths of less than 2m, marked by breakers, lie 3 miles WSW and 3.5 miles SW of the island. A group of above-water rocks lie 2 miles NNW of Isla Beagle.

Rompiente Styler, on which there are breakers, lies 8.5 miles SSW of Isla Beagle. Roca Galicia are two above-water rocks, 4.2 miles SSE of Rompiente Styler. Rocas Holborn, marked by breakers, lies 3 miles ESE of Roca Galicia.

A rock, position doubtful, with a depth of less than 2m, lies about 4 miles NW of Rompiente Styrrer; this rock is the westernmost danger located between the entrances of Estrecho de Nelson and Estrecho de Magallanes.

Golfo Sarmiento (52°13'S., 75°00'W.) is entered between Cabo Brigstock (52°07'S., 75°00'W.) and Cabo Victoria, 10 miles SSE. A main light with a racon is shown from Grupo Evangelistas (52°23'S., 75°06'W.) lying about 9.5 miles SW of Cabo Victoria. The gulf forms the approach to four channels, Canal Silva Varela, Canal Huemul, Canal Montt, and Canal Nogueira. Several below-water rocks lie in the entrance to the gulf and can best be seen on the chart.

Canal Silva Varela, with its NW end 1.2 miles NNE of Cabo Victoria, separates Isla Victoria from the W part of Isla Pacheco. The canal has breakers in its entrance and is almost useless to shipping. Canal Huemul, between the N side of Isla Pacheco and the SW end of Islas Chaigneau, is entered E of Isote Cantuaria. The canal is intricate and foul, and should be avoided.

Puerto Cholguas is entered 1.5 miles SSE of Isote Cantuaria and is deep. Vessels, with local knowledge, may obtain anchorage off the W shore, in a depth of 36m, sand and stones. There is a mooring buoy at the anchorage. It is advisable to moor.

Canal Montt (52°06'S., 74°41'W.) is entered 2 miles ENE of Isote Cantuaria. The center of the canal is free from dangers, except at the NE end where it is foul. Paso Nuevo is entered from the S end of Canal Montt and branches NE for 14 miles to join Canal Uribe.

Puerto Overend (52°08'S., 74°44'W.) lies on the SE part of Canal Montt. Vessels, with local knowledge, may obtain anchorage in the middle of the cove, in a depth of 16m, good holding ground. It is advised to moor with anchors laid in a N to S direction with 140m of cable out on each.

Note.—For details of the approaches to Estrecho de Magallanes, S of Golfo Sarmiento, see Pub. 124, *Sailing Directions (Enroute) East Coast of South America*.

Archipelago Reina Adelaida

8.32 Archipelago Reina Adelaida extends from Cabo Phillip (52°45'S., 73°55'W.) for 76 miles NNW to Estrecho de Nelson. It is up to 45 miles wide and includes all the islands W of Canal Smyth. Four channels connect Canal Smyth with the interior of Archipelago Reina Adelaida, the principal of these being Canal Viel, entered 28 miles NNE of Cabo Phillip.

Isla Bordes (52°05'S., 74°21'W.) is high and wooded, and clear of dangers on its NE coast which is steep-to. Puerto Bordes, off the W side of the island, affords anchorage to vessels with local knowledge. The N end of the island forms the S side of Paso de la Golondrinas.

Canal Ballena is the fairway through Seno Ballena, from Paso de la Golondrinas to Canal Anita, which separates Isla Cornejo (52°16'S., 74°35'W.) from Isla Pacheco. Numerous islets and rocks make navigation difficult, but with caution is sufficiently safe for vessels. A triangular beacon stands on the summit of Isla Cornejo.

Canal Bertrand (52°20'S., 74°34'W.) extends about 8.5 miles from the E side of Isla Cornejo to the E side of Isla King where it joins Canal Esmeralda. The least width of Canal

Bertrand is about 1 mile, but local knowledge is necessary for passage.

Canal Wilson trends parallel to Canal Bertrand, on the E side of the islets and rocks lying up to 2.5 miles E of Grupo Djennana (52°21'S., 74°30'W.) and close to the SE part of Isla Summer. The canal joins Canal Esmeralda 6 miles E of Paso Lamire. Canal Wilson has not been fully explored and should be avoided.

Canal O'Higgins (52°25'S., 74°04'W.) extends 7 miles WSW from Seno Membrillar, along the S coast of Isla Juan Guillemos, and NW of Isla Escobar. The canal is deep in the fairway, but has not been surveyed and should not be entered without local knowledge.

Seno Membrillar lies in the E entrance to Canal O'Higgins. Grupo Membrillar lies in the middle of the sound. Isleta Estrella, the N islet of the group, is covered with vegetation, with no trees, and is a good landmark.

8.33 Canal Pacheco (52°14'S., 74°03'W.) separates Isla Barros Arana and Isla Pedro Montt from Isla Juan Guillemos. The canal is about 20 miles long and runs parallel to Canal Molinas and Canal Viel. Although generally deep, the canal should be navigated with great care, due to its narrowness and the existence of rocks. In Paso Juan Bravo it is only 160m wide, with a least depth of 13m. There is a constant SE flow through the channel.

Canal Virgenes is entered from the NE side of Canal Pacheco and separates Isla Barros Arana from Isla Pedro Montt. Only the NE part of the canal is navigable. Small boats use the SE part and have some difficulty due to the narrowness of the channel.

Canal Molinas (52°04'S., 74°14'W.) extends from the S end of Canal Uribe to Seno Enjambres, at the NW end of Canal Viel, a distance of about 19 miles. The narrowest part of the canal is NW of Seno Meteoro. The SE entrance, N of Punta Ceres, is 1.2 miles wide. There are no known dangers in the fairway. Paso Diana, in the N end of the canal, is the main passage to Canal Uribe and Canal Cutler.

Canal Viel extends from Seno Enjambres to Isla Orlebar, 12 miles SE. The fairway is deep and free of dangers. Rocks lying near the shores are invariably marked by kelp. Winds from the NW blow strongly through Canal Viel. Paso Toro, 2 miles N of the NW end of Canal Viel, enters into Canal Cutler. The pass is reported to be navigable, but is unsurveyed and should not be entered without local knowledge.

Canal Cutler (52°05'S., 74°00'W.) extends 30 miles SE between Paso Cutler and Isla Cutler. The channel is unsurveyed and completely unexplored, but is reported to have a least width of 45m at Angustura Bannen at the NW end.

Canal Smyth—South to North

8.34 Canal Smyth connects Estrecho de Magallanes with the E end of Estrecho de Nelson, and lies E and NE of Archipelago Reina Adelaida. The channel extends 45 miles N along the W side of Peninsula Munoz Gamero, from Islotes Fairway to the SW entrance of Paso Victoria, then it trends NW for 40 miles and is unsurveyed, separating Islas Rennell to the SW from Isla Hunter, Isla Taraba, Isla Palermo, and Isla Piazzi to the NE.

Caution.—Chilean surveys have shown the chart of the area to be inaccurate in many places, therefore, caution is advised when navigating this channel.

Bahia Sholl (52°45'S., 73°53'W.) lies 1.5 miles NE of Cabo Phillip, the W entrance point of Canal Smyth. Pico Sainte Anne stands 1.5 miles N of the bay and is a conspicuous landmark for entering the bay. Anchorage is afforded in the NE part of the bay, but caution must be used to avoid rocks close S of the anchorage. Much of the bay is filled with kelp. Local knowledge is required.

Islotes Fairway lies about 3.8 miles ENE of Bahia Sholl and consist of four islets. A light is shown from the W end of the largest islet. A light is shown on Isla Oscar, about 2 miles E of Islotes Fairway Light. A light is shown on an islet about 1.3 miles N of Islotes Fairway Light.

Roca Lynch (52°44'S., 73°47'W.), 0.5 mile NNE of Islotes Fairway Light, is awash and surrounded by kelp. A dangerous wreck lies close N of the rock. Rocks, also marked by kelp, with depths of 3m, lie from 0.3 mile N to 0.8 mile NE of Roca Lynch.

Puerto Profundo, on the W side of the channel, is entered S of Isote Carreta (52°41'S., 73°45'W.). The entrance is 0.3 mile, wide with patches of kelp. Anchorage may be obtained 0.5 mile inside the port, off the entrance to a lagoon, in depths of 54 to 64m. Two narrow inlets extend 2 miles SW and N from the anchorage; both are fronted by rocks.

Islas Viel (52°41'S., 73°42'W.) form a large group of islands, islets, and rocks on the E side of the channel, extending 6.5 miles NNE from Isla Oscar. The group is generally low and appear from the SW as one large island. The highest island is in the N part of the group.

8.35 Bahia Burgoyne, on the E side of the channel, is entered close S of Cabo Walker (52°37'S., 73°40'W.). A light is shown from Cabo Walker. The entrance is less than 183m wide, but the bay is easily accessible to vessels of moderate size. A shoal, with a depth of 2.7m, lies 0.1 mile ESE of Punta Sudweste; a buoy marks the shoal.

Good anchorage may be obtained at the head of the bay, 0.7 mile from the entrance, in a depth of 32m. The berth is between a rock, 1m high, which lies off the N shore and an islet, 5m high, in the SE corner of the bay.

Isla Green (52°36'S., 73°41'W.) lies on the W side of the channel, 1.5 miles NNW of Cabo Wilson. This group of islands can be identified from the S by its green appearance against the barren background of Isla Renouard. A light is shown from an islet close E of Islas Green.

Bahia Pylades lies on the E side of the channel, abreast Islas Green. The bay affords anchorage off its S shore between two islands, in a depth of 29m. The bay is sheltered from all winds except those from the W.

Isla Renouard (52°34'S., 73°40'W.), about 1.5 miles NNE of Islas Green, is high, rugged, and barren. A light is shown from Punta Buckley, the E extremity of the island. Bahia Goods and Bahia North are coves on the W shore, 1 mile W of Isla Renouard. The two bays are suitable for small craft with local knowledge. The entrance to Bahia Goods is almost closed by rocks.

Paso Shoal is that part of Canal Smyth which continues N for 7 miles from Punta Cecil, 1.5 miles NE of Cabo Walker on the E side, and Islas Green, 1.2 miles W on the W side. It leads, with three sharp bends and a least width of 0.3 mile, between a number of islets and rocks.

Regulations.—Every vessel approaching Paso Shoal from the S or N should sound one prolonged blast 0.5 mile before reaching Punta Buckley or Punta George, respectively. The signal should be answered in a similar manner by any vessel approaching from the opposite direction. The northbound vessel should wait until the southbound vessel has passed.

In bad or thick weather, and at night, vessels should maintain a listening watch on the radio for 1 hour before their ETA at Paso Shoal. Vessels should broadcast their arrival time at 10-minute intervals.

8.36 Isla Shoal (52°33'S., 73°38'W.) lies about 1.3 miles N of Punta Buckley Light. The E side of the island is foul and fringed with kelp. A beacon stands on the summit of the island. A light is shown from the W side of the island.

Grupo Adelaida, a chain of islets and rocks on the E side of the channel, lies about 1 mile NE of Isla Shoal. A wreck is stranded on one of the islets and can clearly be seen when approaching Paso Shoal from the N.

Isla Richards (52°31'S., 73°39'W.) lies on the W side of the channel with its SE extremity, Punta George, 1 mile NNE of Isla Shoal. The island is rugged, barren, and of grayish color. A light is shown from Punta George. To vessels approaching from the N, the two high hills on the island appear as two hummocks.

Islotes Shearwater, on the E side of the channel, lies 1 mile N of Isote Isabel (52°31'S., 73°37'W.). They are five islets with several rocks between them, some awash and some above-water. Roca Pearse, about 0.3 mile SW of Islotes Shearwater, shows a light. Roca Alert lies 0.7 mile N of Roca Pearse and is marked by a beacon.

Seno Aguila (52°30'S., 73°30'W.) is entered 1.7 miles E of Roca Alert. Caleta Amelia, at the head of the inlet, consists of two small coves 0.5 mile apart. Anchorage may be obtained in the N cove, in a depth of 8m. Estero Clapperton extends NNE from the entrance to Seno Aguila, but it has not been surveyed.

8.37 Bahia Retreat, on the W side of the channel, is entered 1.5 miles NNW of Cabo Colworth (52°29'S., 73°39'W.). The bay is well-sheltered, but the depths are too great for a good anchorage. A conspicuous white patch, close N of the bay, is visible from the N on the side of a hill near the shore. Islotes Sparkes lies in the entrance to the bay.

Caleta Tandy (52°25'S., 73°38'W.) lies on the E side of the channel, about 3.8 miles NNE of Bahia Retreat. Small vessels with local knowledge can obtain anchorage off the N shore of the cove. A beacon stands on the S side of the mouth of the cove. Islotes Connor lies 2.5 miles NNW of Caleta Tandy, and on the W side of the channel. The islets are dark in color and appear as stacks of hay. A light stands on the largest islet.

Cresta de Otter, a narrow ridge of sand and stones with some patches of kelp and depths of less than 35m, extends S 1.2 miles from Isla Cunningham and Isla Bedwell. Anchorage may be obtained on Cresta de Otter. Because of its size and accessibility, this is the best temporary anchorage for vessels in

the area. The recommended berth is in depths from 12 to 13m, with Islote Pollo Light bearing 313°, distant about 0.7 mile. Although the bottom is rock, the holding ground is good.

Small vessels can anchor, in depths of less than 10m, on the bank extending S from Isla Cunningham.

8.38 Islas Otter (52°22'S., 73°40'W.) consists of five islands and several islets separating Canales Mayne and Gray at their S end. Isla Campbell, the highest, lies in the middle of the group. Foul ground, with a depth of 5m at its outer end, extends about 0.3 mile E from the N end of Isla Bedwell.

Caleta Otter, which is well-sheltered but confined, lies between Islas Cunningham and Bedwell. It affords good anchorage for small vessels just within the entrance, in depths of 10 to 16m, or near its head under the lee of Isla Campbell, in depths of 11 to 13m. When entering Caleta Otter, keep nearer to the SE side of Isla Cunningham until well inside the cove. When the islets between Islas Bedwell and Campbell are visible, steer for them and anchor when the NE end of Isla Cunningham is in line with the SW extremity of Isla Campbell.

Vessels then continue N through Canal Smyth by transiting either Canal Mayne or Canal Gray.

Recommended routes through Canal Mayne and Canal Gray are shown on the chart.

Canal Mayne is about 8 miles long and leads E of Islas Otter and Summer, though shallower than Canal Gray, it is preferred for vessel not drawing more than 6.7m.

Islote Bradbury, lies about 2 miles NE of Isla Bedwell and on the E side of Canal Mayne. A light is shown from the islet.

Isla Summer (52°20'S., 73°39'W.) lies 1.7 miles NW of Islote Bradbury, on the W side of Canal Mayne. Anchorage can be found, in 20 to 25m, on the S side of Isla Summer between Isla Pemberton and Bajo Summer Sur. A lighted buoy is moored about 0.8 mile NE of the NE extremity of Isla Summer. Vessels should pass about 91m W of this buoy.

Roca Barrie, with a depth of 9m, lies on the W side of the fairway, about 0.8 mile WNW of Islote Bradbury and is marked by kelp.

Isla Larga is located on the E side of the N end of Canal Mayne. The island consists of a range of reddish hills, extending from the S point to about 0.8 mile from the N point. Isla Istmo lies close off the S end of the island. A vessel should not approach nearer than 0.8 mile off the island. A lighted buoy marks San Juan Shoal off the NW end of Isla Larga; vessels pass W of the buoy.

8.39 Puerto Munoz Gamero (52°20'S., 73°33'W.) is located in the inner part of Bahia Munoz Gamero, 2.5 miles E of Isla Istmo. The recommended anchorage is in a depth of 32m, sand and shells, 0.3 mile off the S shore, with Punta Herrera bearing 278°, distant 1 mile.

Ensenada Searle, on the N side of the harbor, is too foul and shallow to be of any use.

Canal Gray, which leads W of Islas Summer and Otter, offers a narrower and more intricate yet deeper passage than Canal Mayne. The channel, which has a least depth of 12.7m, is unlit and more tortuous than Canal Mayne. The kelp, which marks all the dangers, is only visible at slack water. The tidal currents are very strong in the channel, and in general follow

the direction of the channel axis. Between Islas Hoskyn and Orlebar, a velocity as great as 5 knots has been noted.

Islas Vereker (52°22'S., 73°43'W.) lie on the W side of Canal Gray and consists of Isla Vereker Mayor and numerous islets and above-water rocks surrounded by kelp. A beacon stands on the SW extremity of Isla Vereker Mayor. The recommended track in the fairway of Canal Gray is well-marked by beacons on both sides.

Isla Orlebar (52°19'S., 73°43'W.) lies on the W side of the N end of Canal Gray. Three leading beacons are situated on the E side of the island. Anchorage may be obtained, in a depth of 55m, 0.4 mile ENE of the rear beacon. The anchorage is sheltered from the swell and W winds, and the holding ground is good.

Bajo Guacolda, with a least depth of 5.5m, marked by kelp which is only visible under favorable conditions, lies 0.5 mile E of the E side of Isla Orlebar. Roca Cutter lies 0.2 mile NW of Bajo Guacolda and is marked by kelp.

Canal Hernandez (52°18'S., 73°45'W.), W of Canal Gray, separates Isla Orlebar from Isla Pedro Montt. Only the N part of the canal has been surveyed. The S part is encumbered with dangers and should not be entered. Bahia Adriana, on the W side of Canal Hernandez, affords good anchorage to small vessels. The best anchorage is in 14m, with Roca Estacion shut in by Punta Tirsas bearing 045°.

8.40 Isla Baverstock (52°14'S., 73°44'W.) lies about 1.5 miles N of Isla Orlebar and forms the S entrance to Canal Viel and Canal Cutler. The island is 5 miles long with Monte Scherbakoff its highest point. A fair anchorage for small vessels may be obtained in Bahia Fortuna, in a depth of 13m, 183m W of the N extremity of Islote Low, situated on the SE side of Isla Baverstock.

Canal Viel, which has already been [described in paragraph 8.33](#), branches NW from Canal Smyth and is entered N of Isla Orlebar. It separates Isla Pedro Montt from Isla Baverstock and Isla Munoz. The fairway is deep and free of dangers. Rocks lying near the shores are marked by kelp.

Isla Cutler (52°14'S., 73°40'W.) lies 1.2 miles E of the E extremity of Isla Baverstock, on the W side of Canal Smyth. Roca Simm, awash, and the two Islotes David lie close off the S and N ends, respectively, of the island. A light is shown on the SE end of the island.

Canal Cutler extends 30 miles NW to Paso Cutler. The canal lies NE of Isla Baverstock, Isla Munoz, Isla Huemul, and Isla Silva Renard, and SW of the larger island of Islas Rennel. The channel is unsurveyed and completely unexplored, and is reported to have a least width of 45m at Angustura Bannen at the NW end.

Cabo Palmer (52°13'S., 73°40'W.), the SE extremity of Islas Rennel, lies 1 mile N of Isla Cutler, on the W side of Canal Smyth. The cape is low and covered with trees and backed by high land. There are several flat-topped islets off the cape. Bahia Carnatic lies 2.5 miles E of Cabo Palmer and is incompletely surveyed and should be avoided.

Bahia Welcome, on the W side of Canal Smyth, is entered 3.7 miles NW of Cabo Palmer. Small vessels, with local knowledge, may obtain anchorage here, in a depth of 16m, about 0.4 mile SW of an islet on the N side of the entrance to the bay.

Bahia Isthmus lies on the E side of Canal Smyth, 3.5 miles NNE of Cabo Palmer. This small bay is one of the best anchorages in the vicinity, and is safe for large vessels. The best anchorage is in depths of 25 to 29m, in the inner part of the bay, but its width is only 0.1 mile. The dangers in the bay are marked by kelp and markers. When entering the bay, keep to the E of the markers and dangers where a clear channel 0.2 mile wide will be found.

Bahia Sandy (52°07'S., 73°41'W.), on the E side of Canal Smyth, is entered 3.5 miles NNW of Bahia Isthmus. A bank of kelp, with a depth of 7m, extends across the entrance E to W. Within the kelp there are depths of 36m, but the bay is not recommended for large vessels. Small vessels with local knowledge can anchor close S of the kelp.

Promontorio Stanley, 4 miles N of Bahia Sandy, projects 0.5 mile from Peninsula Zach to within 0.7 mile of Islas Rennel. A light is shown on a small islet close off the SW side of the promontory.

8.41 Paso Victoria (52°00'S., 73°43'W.) is entered 2 miles N of Promontorio Stanley and joins Canal Smyth to Estrecho Collingwood. This is part of the normal route followed by shipping bound N and S. At the S end of the pass Canal Smyth continues NW for 40 miles to join Estrecho de Nelson. This part of Canal Smyth is mainly unsurveyed.

Roca Bessel lies on the E side of the fairway in Paso Victoria. The rock is 3m high. A light stands on its summit.

Isla Brinkley (51°59'S., 73°41'W.) lies at the NE end of Paso Victoria and has a well-defined peak. The island is brownish in color and has a few small trees on it. A light is shown from Punta Cork, the W extremity of the island. Arrecife Cloyne lies 0.7 mile WNW of Punta Cork and is marked by a beacon and a light.

Seno Union extends 20 miles SE from Isla Brinkley and is 1.5 to 4 miles wide. Bajo Bordes (52°05'S., 73°31'W.) has a reported depth of 5.7m and lies 7 miles SE of Isla Brinkley. Roca Crater, with a depth of 5.5m, lies 1 mile ENE of Bajo Bordes.

Puerto Fontaine (52°03'S., 73°29'W.) lies 8.5 miles ESE of Isla Brinkley. Islote Rosaura, with a rock which dries close W, lies 0.1 mile E of the W entrance point. The cove, 0.4 mile wide, affords anchorage 0.2 mile NNE of Islote Rosaura, in a depth of 29m. The W side of the cove appears to be less deep than the E side and its head should not be approached closer than 0.1 mile. The cove affords temporary anchorage for vessels.

Bahia Oracion lies on the S side of Seno Union, 9.5 miles SSE of Isla Brinkley. Islotes Thomson lies 1.5 miles NE of Bahia Oracion. Cabo Ano Nuevo is located 2.5 miles E of Islotes Thomson.

8.42 Bahia Ano Nuevo (52°10'S., 73°32'W.) is entered 2.5 miles WSW of Cabo Ano Nuevo. The bay is about 3 miles long and 1.5 miles wide. The bottom is naturally level with a mean depth of 30m, soft black mud, and good holding ground. It is divided into two bays, E and W. The W bay affords anchorage to all size vessels. The E bay affords anchorage for small vessels. A fair amount of sea enters the bay from Seno Union during N and NW winds, but vessels will be well-sheltered if

anchored near the W shore. There is little shelter from SW winds as the S shore is low.

Paso Sin Nombre is entered E of Cabo Earnest, 7 miles E of Cabo Ano Nuevo. The pass trends N for 2.5 miles and is 1 mile wide. There are two small coves on the E side of the pass. Bahia Leeward, close to the E entrance point has not been examined, but Caleta Whale Boat, situated 1 mile farther N, affords anchorage to small craft.

Estero de las Montanas (52°00'S., 73°18'W.) extends 30 miles N from Paso Sin Nombre, and is 0.5 to 2 miles wide. The inlet is bordered on both sides by steep mountains, covered with snow. At its N end are two bays, with sandy beaches, rising to the mountains 2 miles inland.

Canal Morla Vicuna leads from the N end of Paso Sin Nombre, 4 miles E, where it divides into Canal Santa Maria and Canal Kirke. The shores of the channel have not been surveyed, but there are no known dangers, although the tidal currents are strong.

8.43 Canal Santa Maria (52°00'S., 73°07'W.) and Canal White, its continuation, trend N and NE for 18 miles between Peninsula Roca and Isla Diego Portales. Both sides of the channel are high, steep, and thickly wooded. Canal Santa Maria is very deep, in places exceeding 275m, but Canal White is shallower. The channel is very liable to sudden heavy squalls, especially in summer, when Canal White is frequently a mass of spray.

Puerto Condell is a cove formed by the S side of Isla Margarita and the W shore of the S end of Canal Santa Maria. It provides excellent temporary anchorage for vessels up to 50m in length, and is often used by vessels waiting for the tide to slacken in Canal Kirke. The anchorage, which is easy to leave at night, is in a depth of 30m, 183m offshore in the NW corner of the cove.

Islote Fernandez and Islote Vial lie near mid-channel, 0.5 mile N of Isla Margarita. A rock, awash, lies close N of Islote Vial. Vessels should pass E of Islote Vial or W of Islote Fernandez, the latter passage being much wider and deeper.

Canal White (51°55'S., 73°00'W.) is much encumbered with islands and islets and can best be seen on the chart. Vessels transiting this channel should preferably be equipped with twin screws. This channel is not recommended for vessels over 1,000 grt. Many drifting icebergs have been reported in the channel. Vessels transiting the channel are also limited to a maximum length of 140m and a maximum draft of 7m. Transits should only be done in favorable weather conditions during daylight hours.

Pilotage is compulsory for all vessels navigating Canal White.

8.44 Canal Kirke leads ENE from the E end of Canal Morla Vicuna for 5 miles to the S end of Canal Valdes. The channel has a least navigable width of about 40m in Angostura Kirke at its E end. There are three groups of islands, 1 mile apart, in the E half of the channel. The fairway lies S of these islands and is clear of dangers except in the narrows. There are several anchorages for small vessels, with local knowledge, out of the tidal currents. Vessels up to 150m long, with a maximum beam of 23m and a maximum draft of 6.3m, can transit the narrows.

Canal Valdes (52°00'S., 72°57'W.) extends NNE from the E entrance of Canal Kirke for 10 miles to the SW end of Golfo Almirante Montt. The channel is deep and from 1 to 3 miles wide. The only known dangers are in the N part and are not more than 0.3 mile offshore. Peninsula Morgan lies 1.5 miles E of the entrance to Canal Kirke, with Punta Lavapie, its N extremity.

Bahia Ladrillero lies E of Peninsula Morgan. It affords a well-sheltered anchorage to small vessels, with local knowledge, in a depth of 6m, mud. Caleta Fog, on the W side of Canal Valdes, affords anchorage 3 miles NNW of Punta Lavapie (52°03'S., 72°57'W.).

Bahia Cameron (51°57'S., 72°56'W.), on the W side of Canal Valdes, is a cove 6 miles N of Punta Lavapie.

Bahia Easter is on the E side of the N end of Isla Diego Portales (51°55'S., 72°54'W.). Bajo de Afuera, with a depth of 3m, and marked by kelp, is S of several dangers in the entrance to the bay. Vessels, with local knowledge, can anchor in the SW part of Bahia Easter, in a depth of 12m, sand.

Caleta Estancia Montes (51°58'S., 72°52'W.) lies 6 miles NNE of Punta Lavapie and can be identified by several white houses which are the only buildings in the vicinity. There is a small wooden pier with a depth of 1m at the head. Small vessels can anchor off the pier, but are exposed to NW winds.

Estero Worsley extends from the NW part of Golfo Almirante Montt, 3 miles N of the entrance to Canal White. It extends 20 miles NW and is mostly unsurveyed. Isla Ballesteros is the largest of several islands in the inlet. Estero Resi branches 10 miles SW of this island. Seno Borcosky lies N of Estero Resi.

8.45 Golfo Almirante Montt (51°53'S., 72°40'W.) is entered from the W through either Canal White or Canal Valdes. It extends 15 miles E and is 5 miles wide. The W part of the gulf is deep, but there are moderate depths E of Isla Focus. Estero Obstruccion leads S from the S side of the gulf, and Canal Senoret leads from its NE end into Estero Ultima Esperanza.

Islas Focus (51°55'S., 72°44'W.) is 114m high and steep on its W side, and is usually uninhabited. A rocky bank, with a depth of 4m over its outer edge, extends 2 miles ESE from the SE point of the island. This bank almost closes the passage between it and the mainland to the S and E. There are well-sheltered anchorages, for vessels with local knowledge, 0.3 mile E of Isla Focus, in a depth of 12m, or farther E, in a depth of 27m.

Bajo Virginia, with a depth of 7m, lies in the middle of the passage between Isla Focus and Isla Ismael, 1.2 miles to the N. A buoy is moored close E of the rock in the middle of Bajo Virginia.

Grupo Coruna (51°52'S., 72°45'W.), N of Isla Focus, consists of four islets extending 1.5 miles S from close N shore of the gulf. All the islets are steep-sided and rocky with some vegetation. Passage between the islets and between the group and the N shore should not be attempted.

8.46 Bahia Coruna (51°51'S., 72°44'W.) is protected from SW and NW winds, and affords anchorage for small vessels. A rock, with a depth of 1.5m, lies off the NE shore. The recom-

mended berth is in depths of 18 to 20m, mud, SW of Bajo Nielson. Local knowledge is required.

Puerto Riquelme (51°50'S., 72°39'W.), on the N side of the gulf, is situated 4.5 miles NE of Isla Focus. The cove is reported not to be a good anchorage as vessels are liable to drag anchor when the wind exceeds 20 knots.

Caleta Delano, on the N side of the gulf, is entered W of Morro Jorge (51°50'S., 72°37'W.). The cove affords good anchorage to small vessels with local knowledge off the W side of Morro Jorge. The entrance should be approached with caution as foul ground, marked by kelp, extends S from the S entrance point and also SE from Morro Jorge.

Seno Obstruccion is entered 3 miles E of Punta Obstruccion (51°57'S., 72°49'W.). Grupo Escampavia, a chain of islets and rocks, lie in the entrance to Seno Obstruccion and penetrates the middle of the inlet for 5 miles. The inlet is mostly unsurveyed, but there is an anchorage in a cove on the E side of the inlet, 6 miles within the entrance. There is anchorage in Caleta Dora, on the W side of the inlet, in a depth of 18m.

Puerto Lastarria (51°58'S., 72°37'W.), on the S side of the gulf, is entered between Punta Cuevas, 4.5 miles ESE of Isla Focus, and Punta Linacre, 1 mile farther ESE. The port affords the best anchorage in the gulf to vessels with local knowledge, in depths of 9 to 12m. There are, however, several shoals with depths of 5m in the fairway.

Puerto Demaistre is a cove on the E side of the gulf, 3.5 miles NNE of Punta Desengano (51°51'S., 72°32'W.). It affords a good, but unsheltered, anchorage to small vessels with local knowledge, in depths of 6 to 8m, mud.

8.47 Canal Senoret (51°43'S., 72°37'W.) is about 9 miles long and is entered between Punta Bordes (51°47'S., 72°34'W.), which is low, and the N entrance point of Puerto Demaistre. Islotes Cisnes are three low islets covered with vegetation. A light is shown on the E islet. A buoy marks the shoal water on the E side of the canal, 0.7 mile NE of Islotes Cisnes Light.

Punta Galpon lies on the E side of the Canal, about 2.5 miles NNE of Punta Bordes. It is easily distinguished by the corrugated iron warehouses which stand on it. Rodal Liberona, a bank which dries, extends 0.2 mile S from the point.

Puerto Natales (51°45'S., 72°32'W.) lies 0.5 mile NNE of Punta Galpon. The prevailing W and NW winds affect berthing and unberthing.

The deepest and longest berth is Muelle Terminal Maritimo. It is an L-shaped pier projecting 105m from Punta Galpon. The head of the pier is 32m long with a depth of 9m alongside. Two berthing dolphins lie off the S end of the pier. Ro-ro ferries drawing 8.2m berth alongside. A mooring buoy, 0.1 mile SW of the pier, is for the use of ferries.

Muelle Arturo Prat, 133m N of Muelle Terminal Maritimo, is a T-headed pier projecting 108m from the shore at the end of the main street of the town. The pier has a berthing face 31m long and can be used by vessels drawing up to 4.26m. It is illuminated at night and a light is exhibited at its head. No cargo handling equipment is available. It is advisable for vessels to berth bows N. There are no mooring buoys at the berth.

Pilotage.—Pilotage is compulsory for vessels berthing alongside at Puerto Natales. The pilot boarding place is 0.5

mile ENE of Islotes Cisnes Light. Tugs are not available. The port monitors VHF channel 16.

Anchorage.—Vessels awaiting a berth can anchor, in a depth of 30m, mud, in mid-channel NW of Muelle Arturo Prat.

8.48 Puerto Bories (Puerto Graseria) (51°43'S., 72°33'W.) lies 2 miles NNW of Puerto Natales. The port is the terminal for a large cold storage plant situated 2 miles NNW of Puerto Natales. The buildings of the plant are prominent.

The terminal consists of a T-headed pier 185m in length fronting the plant. Vessels up to 150m long and a 7.3m draft can berth alongside the head of the pier 60m long. Vessels usually berth starboard side-to, letting go the port anchor and veering at least 110m of cable.

Pilotage.—Pilotage is compulsory for vessels berthing alongside. The pilot boarding place is the same as Puerto Natales.

Anchorage.—Anchorage, in depths of 10 to 12m, stones and mud, can be obtained 0.2 mile WNW of the head of the pier. The anchorage is completely exposed to the prevailing winds.

Estero Eberhardt extends 5.5 miles N from the NW end of Canal Senoret. It should only be entered by small vessels with local knowledge, as much of it is shallow. A bank, with depths of less than 5m, continues NW from Bajo Choros across the entrance to the inlet. There is a least depth of 3m E of Punta Jamon. The depths increase to 8m, 1 mile within the entrance.

Puerto Condor (51°40'S., 72°40'W.) lies on the E side of the entrance to Estero Eberhardt. It affords an anchorage, in a depth of 3.5m, 183m SW of a pier. A warehouse and hotel are good landmarks.

Puerto Prat is on the E side of the inlet, 1 mile N of Puerto Condor. There is a well-sheltered anchorage, in depths of 7 to 8m, with a flagstaff in line with the hotel at Puerto Condor. There are two piers, a warehouse, and a shed in the port.

8.49 Estero Ultima Esperanza (51°35'S., 72°56'W.) extends 26 miles WNW from Isla Guanaco. The inlet has steep cliffy shores, but has not been surveyed. The passage leading into the inlet is 0.2 mile wide and deep. There are probably many shoals in the inlet, which is reported to be dangerous. It can be navigated only by vessels with local knowledge, and having a draft of not more than 2m for a distance of about 20 miles from the entrance.

Puerto Bellavista lies on the N side of the head of the inlet. A beacon stands at the S end of Bajo Topar, 0.4 mile NE of **Punta Emma** (51°28'S., 73°19'W.). There is a pier for small craft, 0.2 mile NW of the beacon and close to a sawmill. The pier is 40m long with a depth of 3m at its head. The cove affords a well-sheltered anchorage either E or W of the beacon, with good holding ground.

Tidal currents in Estero Ultima Esperanza are weak, and mainly influenced by the winds.

In Estero Eberhardt, the tide is greatly influenced by the winds, with as many as four high waters being experienced in one day shortly before a gale. Conversely, in continuous calm weather, there may be no rise or fall of the tide for 2 or 3 days at a time.

Estrecho Collingwood to Canal Inocentes

8.50 Estrecho Collingwood, the continuation of the charted smooth water route N from Paso Vitoria, separates **Isla Newton** (51°52'S., 73°45'W.) and Isla Carrington, 1 mile to the N. Paso Farquhar, between the two above islands, leads sharply W for 4 miles to the S end of Canal Sarmiento.

The N part of Estrecho Collingwood is not recommended as it has not been examined. It is narrow, with varying depths, and bordered by dangers. The channel between Isla Newton and Isla Hunter, to the SSW, has not been surveyed. The channel between Isla Newton and Isla Taraba is narrow and foul.

Islote Catalina (51°58'S., 73°41'W.) lies 0.5 mile W of the fairway. Grupo La Place, 1 mile N of Islote Catalina, extends NW to the S extremity of Isla Newton. The islets are low, flat-topped, and covered with trees and bushes.

Caleta Dixon (51°57'S., 73°42'W.), between Grupo La Place and Isla Newton, can be entered either from the N or S, but during strong N winds it is advisable to enter from the S. Local knowledge is required. When approaching from the S, Caleta Dixon opens as soon as Punta Ross, the E extremity of Isla Hunter, is passed. When approaching from the N, follow the coast of Isla Newton to the entrance between that island and Isla La Place. If the N wind is blowing strongly, it is better to pass E of Grupo La Place and enter the cove from the S, head to wind.

Anchorage may be obtained, in depths of 30 to 43m, clay, sand, and mud, good holding ground.

Caleta Columbine is entered S of Peninsula Ward, 3 miles N of Grupo La Place. The cove is fairly well-sheltered, but strong squalls sometimes descend the steep mountainside, and the holding ground is bad. A beacon stands on a small islet in the middle of Caleta Columbine. Another beacon stands on a hill on the W entrance point. Anchorage may be obtained, in a depth of 14m, with the SE extremity of Peninsula Ward bearing 062°, distant 1 mile. Caleta Columbine has been reported to be a poor anchorage even during normal weather.

Seno Profundo (51°55'S., 73°35'W.) is located on the E side of Estrecho Collingwood, 5 miles SE of Peninsula Ward. The sound is deep, but anchorage may be found, in depths of 25 to 35m, 0.5 mile from its head near the N shore. The anchorage is only 183m in extent, but is well-sheltered. A vessel in the anchorage can secure their stern to trees on the shore. When entering the sound, pass through the entrance in mid-channel, with a large dip in the hills at the head of the sound bearing 120°.

8.51 Isla Quena (51°49'S., 73°42'W.) lies on the NE side of Estrecho Collingwood and in the middle of the entrance to Bahia Stewart. The island shows a light on its SW extremity. Bahia Stewart lies NNE of Isla Quena and is deep and free of dangers. Isla Young lies 1.5 miles NE of Isla Quena and in the entrance to Seno Taraba, which branches SSE from Bahia Stewart for 20 miles. There is anchorage in a cove on the W side of Seno Taraba, 5 miles within its entrance.

Seno Yuseff lies at the N end of Bahia Stewart, and is free of dangers to a creek at its head. Seno Llorente is 2.5 miles E of Seno Yuseff, extends in a N direction, and has a river at its head. There is anchorage, in a depth of 45m, 0.2 mile S of the river mouth. Seno Benavente is entered close E of Seno

Llorente and between two groups of islands. It is free of dangers. A bay, at its head, may afford anchorage, but has not been examined.

Bahia Islas lies 2 miles N of the N extremity of Isla Newton. The bay affords emergency anchorage for vessels up to 80m in length. The bay is well-sheltered from all winds, and no sea or swell comes in. The anchorage is on a large rocky shelf, in depths of 15 to 30m. The least depth reported in the bay was 8.2m. To reach the anchorage, steer 290° in mid-channel through the NE entrance, which leads in a least depth of 30m.

Bahia Gregg (51°49'S., 73°52'W.) is a small but deep bay with much kelp around its shores. In emergency, small craft can obtain temporary anchorage, in depths of 40 to 45m, with shelter from the SW and NW quarters, within 68m of the head of the bay. A light is shown on the N entrance point of Bahia Gregg, but it is not visible from the anchorage.

Canal Sarmiento

8.52 Canal Sarmiento extends from Bahia Gregg, 67 miles NNW, to Angostura Guia and is from 0.5 to 2 miles wide. During the winter months, ice and drifting icebergs render navigation hazardous at night and in poor visibility.

Bahia Wodehouse (51°47'S., 73°56'W.) lies on the W side of the canal, about 3.8 miles NW of Bahia Gregg. Two small islets, almost joined together, lie in the middle of the entrance to the inlet, within which the inlet narrows to a width of 0.2 mile before opening out to form a bay. Good temporary anchorage, for vessels up to 120m in length, can be obtained, in depths of 30 to 35m, good holding ground.

Abra Lecky Retreat has an entrance 0.7 mile wide, but opens out to a width of 1.5 miles within the entrance. It is located on the W side of the canal, about 4.5 miles NNW of Bahia Wodehouse. Anchorage in Abra Lecky Retreat is precluded by its great depths. Caleta Ocasión lies on the N side of Abra Lecky Retreat, at the foot of Cerro Alfredo. There is temporary anchorage for small vessels in the cove during good weather. A light is shown on a point 2.7 miles NNW of the entrance to Abra Lecky Retreat.

Close N of Isla Piazzì Light, a well-sheltered cove affords anchorage to vessels with local knowledge, in depths of 27 to 37m. When entering the cove, keep close to the N shore to avoid a patch of kelp near the middle.

Bahia Moore (51°46'S., 73°52'W.) is on the W side of the canal, about 2 miles NE of the entrance to Bahia Wodehouse. Good anchorage may be obtained in the outer part of the bay, in a depth of 50m. Local knowledge is necessary for entering the bay as it has not been surveyed.

Bahia Pascoe is entered 1.5 miles N of Bahia Moore by a narrow channel with a least width of 0.1 mile. In the channel, depths decrease toward the inner end where a depth of 19m has been obtained. Anchorage with good holding ground may be obtained in the middle of the bay, in a depth of 55m, clay and mud. When entering the inlet steer 005°, parallel to the W side of the channel and 91m off it, until the point projecting from the E side has been passed, when course may be shaped for the anchorage.

Punta Oeste (51°32'S., 74°04'W.), on the W side of the canal, is the N extremity of Isla Piazzì. Islots Locas form a small group 4 miles NW of Punta Oeste and near the middle of

Paso Tarleton. This passage separates Isla Piazzì from Isla Vancouver, and leads into Estrecho Nelson.

Punta Don Pedro lies 5 miles NNW of Punta Oeste. It is the SE extremity of Isla Vancouver, which extends 10 miles NNW. A light is shown on an islet 1.7 miles N of Punta Don Pedro. Abra Themis is an inlet 5 miles NNW of Punta Don Pedro and is entered close S of Punta Anderson (51°22'S., 74°07'W.). Vessels with local knowledge can obtain anchorage W of the islets off Punta Anderson.

8.53 Cabo San Mateo (51°24'S., 74°02'W.), on the E side of the canal, lies 3.2 miles SE of Punta Anderson. It is the S extremity of Isla Evans. Puerto Mayne lies 4.5 miles NNW of Cabo San Mateo and consists of an inner and outer anchorage. Both anchorages are perfectly safe, but only suitable for small vessels as the space is limited. Large vessels can obtain anchorage outside Puerto Mayne, midway between Punta Richard and Isla Eclipse, in a depth of 47m, but there is very little shelter.

Isla Evans is separated from Peninsula Staines by Paso Childers, and from the unnamed peninsula to the N by Paso Stewart. Paso Blanche, entered from Paso Childers, 7 miles NE of Cabo San Mateo, separates Isla Evans from Isla Owen to the E.

Isla Whidbey (51°17'S., 74°10'W.), on the W side of the canal, lies close off the NE end of Isla Vancouver. A shoal, the charted position of which is doubtful, lies 0.5 mile ENE of the N extremity from Isla Esperanza, leads 4 miles W into Canal Esteban, but has not been surveyed. Grupo Hays form a chain of islets extending 3.5 miles S from the SE end of Isla Esperanza to within 1 mile of Isla Whidbey. A rock, with a depth of less than 2m, marked by kelp, lies 0.7 mile N of the N extremity of Isla Whidbey.

Islote Edelmira (51°08'S., 74°12'W.) lies on the W side of the canal close to Isla Esperanza. A shoal, with a depth of 5m, lies close E of the island's N end and is marked by kelp.

Isla Lucia lies on the W side of Canal Sarmiento, and 5 miles NNW of Cabo Brassey, the NW end of Isla Evans. A light is shown on the SW point of the island. Islotes Paget, which are low, extend 1.7 miles N from Isla Lucia.

8.54 Puerto Bueno (51°00'S., 74°13'W.) lies on the E side of the canal and is entered between Punta Hankin and Islote Pounds, 0.3 mile to the NW. A light is shown on Islote Pounds. The port consists of an inner and outer anchorage. Both anchorages are safe, but the inner is more sheltered. The outer anchorage affords a good berth 183m NNE of Islote Pounds, in a depth of 12m, mud. The inner anchorage is 0.1 mile NE of Isla Paynter, in a depth of 18m, sand and shells.

Islote Bonduca (50°56'S., 74°17'W.) lies on the E side of the canal, 4.7 miles NNW of Islote Pounds. An above-water rock lies on a reef close S of the islet. A light is shown on the SW side of the islet. Isla Sombrero Ladeado lies on the E side of the canal, 1.2 miles N of Islote Bonduca.

Regulations.—All vessels using Canal Sarmiento, when approaching the narrows of Islote Bonduca, are required to make a general call via radiotelephone when 4 miles from the island.

Vessels approaching the narrows from the S should reduce speed and, if necessary, wait for southbound vessels to pass before proceeding.

8.55 Estero Peel, E of Canal Sarmiento, is entered between Cabo San Antonio, 3 miles ENE of Islote Bonduca, and the S side of Isla Chatham, 3 miles N. Estero Peel extends 12 miles E, 15 miles NNE, and 12 miles NE. This inlet should not be entered without local knowledge.

Canal Pitt (50°40'S., 74°12'W.) leads NNW from Estero Peel for 25 miles to Estero Andres. Isla Peel is separated from the SE end of Isla Chatham by a narrow channel, 4 miles long, which is deep and clear of dangers.

Estero Asia is entered 6 miles E of Isla Peel. The inlet extends 30 miles NNE and forms Peninsula Wilcock to the W. Estero Calvo branches 15 miles E, 12 miles within Estero Asia. Many glaciers descend to both these inlets, which reach the foot of Cordillera de los Andes.

Caleta Amalia (50°56'S., 73°51'W.) lies 2.5 miles from the head of Estero Peel, on the W side. The cove affords a well-sheltered anchorage to vessels with local knowledge, in a depth of 27m. An islet lies in the middle of the entrance to the cove, with a passage on either side. The deeper and wider passage is S of the islet, which should be given a wide berth as there is a rock, awash, 91m S of it. The cove appears to be easy to access and clear of dangers except for floating ice.

Caleta Goicolea (50°48'S., 74°16'W.) is a small cove on the W side of an inlet on the S side of Isla Chatham. Small vessels can obtain good sheltered anchorage, in a depth of 12m, good holding ground. The cove is free from dangers apart from some rocks close inshore, and a vessel anchored in the middle of the cove has 137m of swinging room.

Isla dos Canales lies 1.5 miles S of Cabo Carlos (50°51'S., 74°20'W.). The island is the junction point of Canal Sarmiento and Canal Esteban, which leads S on the W side of Isla Esperanza.

8.56 Caleta Latitud (50°52'S., 74°24'W.), on the W side of the canal, is entered between Punta Laura and Punta Blanca, 0.1 mile to the NW. The navigable width of the entrance is reduced to 91m by shoals, with depths of 3.5 to 4.9m, which extend from the shore S and SE of Punta Blanca. A shoal, with a depth of 11m, lies in the middle of the navigable channel SE of the point. Anchorage may be obtained, in depths of 32 to 36m. When entering the cove, keep to the S side to avoid the shoals off Punta Blanca, and when inside the cove, steer to pass 183m N of Punta Elisa to the anchorage.

Angostura Guia, between Isla Hanover and Isla Chatham to the NE, connects Canal Sarmiento with Canal Inocentes. The narrows extend 4 miles WNW, and have a least width of 0.2 mile at the NW end between Punta Porpoise and Isla Guard, an islet close off the NE shore. There are no known dangers, and the shores on either side are steep-to.

Caution.—Icebergs have been reported occasionally in Angostura Guia, and in Canal Inocentes as far as Punta Don. Caution is therefore necessary when navigating in this vicinity, especially at night and in poor visibility.

Isla Escala Alta (51°47'S., 74°26'W.) is prominent from the approaches to both ends of the narrows. There is a small cove on the E side of the island, but the bottom is foul and it is not recommended. A light is shown on the NE extremity of the island.

Isla Bonny lies close off the N shore of the narrows, 2.7 miles WNW of Punta Passage. Isla Guard lies 1 mile NW of Isla Bonny. Punta Porpoise, on the S side of the NW entrance to the narrows, is low and sharp. A light is shown on the point.

Tides—Currents.—Tidal currents in Angostura Guia run SE and NW at rates of 2 to 3 knots at springs, but a maximum rate of 8 knots has been experienced between Punta Porpoise and Isla Guard (50°44'S., 74°31'W.). Strong overfalls occur on the NW current at springs, just outside the NW entrance to the narrows. While the current is running S in Canal Sarmiento, the corresponding current NW of Angostura Guia runs N, the place of separation is not known.

Canal Inocentes

8.57 Canal Inocentes leads NW from Angostura Guia for 18 miles to Canal Concepcion, where it is 10 miles wide. There are many islands and islets on both sides, and some large islets which have not been surveyed. The S side of the channel is formed by a succession of high coves, sloping NW, and terminating in Grupo Clements and Isla Froilan. On the N side are three precipitous headlands, with deep inlets between them, the land then trends N, and the foreground consists of fairly high islands.

Caleta Rayo (50°45'S., 74°32'W.), on the SW side of Canal Inocentes, is entered W of Punta Porpoise. It is a narrow and deep inlet extending 3 miles S. Anchorage can be obtained 1 mile within the entrance, in depths of 50 to 60m, but it is not recommended. The W side of the cove has depths of 10 to 23m, but it is too close inshore for vessels to swing. A vessel, when entering, should keep close to the E shore.

Puerto Ochovario, on the NE side of Canal Inocentes, is entered 1.5 miles N of Punta Porpoise, and extends 2.5 miles E between lofty mountains. Anchorage may be obtained at the head of the inlet, in a depth of 40m, off a remarkable bluff on the S shore, but should only be used in case of necessity. A patch of kelp extends across the inlet within the entrance.

8.58 Bahia Wide (50°39'S., 74°36'W.) is a cove at the head of a bay which is formed by Islotes Long and Isla Juan. The bay is deep, with a rocky bottom, and well-sheltered from N gales. Anchorage may be obtained in Bahia Wide, in depths of 27 to 31m, with Islote Green bearing 023°, distant 0.1 mile, and a low hill in the NE part of Isla Juan bearing 289°. When entering the bay, keep close to Isla Juan to avoid Roca Ramses and the dangers N of it. Bahia Wide is not recommended as a good anchorage.

Isla Robert, on the NE side of the canal, lies with its S end 4 miles NNW of Punta Don (50°40'S., 74°38'W.). The island is double-peaked, shaped like a saddle, and is very prominent when seen from the N. No anchorages have been found on the S and E sides of the island.

Islotes Wheeler (50°34'S., 74°44'W.) lie on the E side of the Canal, 4 miles NW of the S point of Isla Robert. When approaching from NW, the islets appear as one long islet, covered with stunted trees. The islets are useful in thick weather for making the entrance to Canal Inocentes, as they are often seen when the higher land is hidden. A light is shown from the W side of the islets.

A shoal bank, with depths of less than 18m and a least known depth of 8m on its SE side, lies 1.5 miles NW of Islotes Wheeler. In case of emergency, the S side of this bank affords anchorage, sheltered from moderate W and NE winds, with a bottom of soft mud.

Canal Artilleria, entered 3.2 miles NE of Roca Taylor (50°32'S., 74°45'W.), separates Isla Chatham from Isla Figueroa to the NW. The channel, which is only navigable by small craft, is less than 20m wide in its narrowest part and has depths of from 10 to 14m. On the NW side of the channel, 2 miles from its NE end, a deep inlet extends NW to the foot of Pico Sungular.

Isla Inocentes (50°33'S., 74°51'W.) lies at the NW end of Canal Inocentes, at its junction with Canal Concepcion. Islotes Hope, which are low, and some rocks extend 0.5 mile off the SE end of the island. It has been reported small craft could anchor during N winds in a cove at the S end of the island. A light is shown on the E side of the island.

Canal Concepcion—East Side

8.59 Canal Concepcion (50°18'S., 74°49'W.) commences at Isla Inocentes and terminates at Paso Brassey, the junction of Canal Trinidad and Canal Wide. This part of the canal is about 30 miles long, with an average width of 5 miles in the S part and 2.5 miles in the N part. A number of good anchorages are found on the W side of Canal Concepcion.

Punta Tapering (50°29'S., 74°47'W.) is located on the E side of the canal, 4.5 miles NNE of Isla Inocentes Light. The point is low and wooded. Islotes Chance, 1.5 miles N of Punta Tapering and close offshore, are low and wooded, and difficult to distinguish from the W. Vessels should not approach this shore within a distance of 2 miles.

Bahia Eardley is entered about 1.3 miles N of Islotes Chance. Depths of 42m, with a rocky bottom, have been obtained at the head of the bay, but it is an exposed and confined situation. A narrow channel leads from the N end of the bay to a basin, and is used only by small craft.

Bahia Hugh (50°24'S., 74°45'W.), on the E side of the canal, is entered 2.7 miles NNE of Cabo Childers. The entrance is encumbered by a group of islets and rocks, dividing it into two passages. Either passage can be used, but Entrada Norte is the preferred entrance as it is the wider and straighter of the two. Anchorage may be obtained in the bay S of Islas Middle, in depths of 31 to 54m. The anchorage is sheltered from all but NW winds, and even during these no sea is felt.

Cabo San Andres is the W extremity of Isla Canning and is located 5 miles N of Bahia Hugh. The cape is a low promontory, with a flat top. It forms the N entrance point to Canal Andres, which has not been fully examined. The cape may be passed safely at a distance of 0.5 mile.

Canal Andres is entered between Bahia Hugh and Cabo San Andres. Islas Kentish lie near the middle of Canal Andres, about 12 miles ESE of Cabo San Andres. Seno Fuentes, entered 3 miles E of Islas Kentish, extends 10 miles N. Seno Guillard, 9 miles E of Islas Kentish, branches ENE for 9 miles. Large blocks of ice, which descend from a glacier at the head of Seno Guillard, render navigation in Canal Andres dangerous.

8.60 Isla Jorge (50°15'S., 74°42'W.) lies 3.5 miles N of Cabo San Andres. It is separated from Isla Canning by a channel, 1 mile wide, which has not been surveyed. The island can be identified from the S by a round summit, on its E side. Isla Portland lies with Punta Green, its SE end, 0.5 mile SSE of the W extremity of Isla Jorge. Bahia Portland is the SE part of the channel between Isla Jorge and Isla Portland.

Good and convenient anchorage for small vessels may be obtained, in depths of 16 to 20m, with Punta Green bearing 212° and Roca Entry (50°16'S., 74°44'W.) bearing 138°. Vessels lie comfortably here at single anchor, but if intending to remain, it is recommended that a vessel drop both anchors 183m farther WNW.

Seno Tres Cerros is entered between Cabo Bentinck, the NW extremity of Isla Jorge, and Cabo Clanricarde (50°12'S., 74°42'W.). It separates Isla Jorge from the mainland, 1 mile NE, and is unsurveyed. A rock lies close S of Cabo Clanricarde.

Estero Lecky is entered S of Punta Squire (50°06'S., 74°36'W.). No anchorages have been found in Estero Lecky. There is a depth of 18m, mud, in a very confined position in a small cove on the N shore, 2.5 miles NE of Punta Squire.

Canal Concepcion—West Side

8.61 Punta Anunciada (50°30'S., 75°03'W.) is the NE extremity of Isla Duque de York, 7 miles WNW of Isla Inocentes. The point is prominent, having three islets close N which are covered with dark trees of triangular shape, and stand out against the high ground backing the point. A light is shown from an islet close off the point. Canal Oeste is entered between Punta Anunciada and Cabo Cortes, the SE end of Isla Escribano.

Seno Landslip is entered S of Punta Snout (50°27'S., 75°00'W.) and extends 2.5 miles N between Isla Hocico and Isla Escribano. Isla Garcia lies close off the NE part of Isla Escribano. Seno Landslip should not be entered without local knowledge.

Canal Monteith (50°25'S., 75°01'W.) leads 5.5 miles WNW from the N end of Seno Landslip. Canal Pasaje, which is only fit for small craft, branches SSW from the middle of Canal Monteith for 5 miles to Canal Oeste, separating Isla Escribano from Isla Caracciolo to the W. There is good anchorage in the canal, 1.5 miles from the E entrance, but the approach is intricate. Vessels with local knowledge may obtain anchorage, in depths of from 27 to 36m, mud, with Monte Sunday bearing 000°, distant 0.7 mile.

Bahia Walker is entered between Islote Wake and Punta Fox (50°22'S., 74°55'W.), 1.5 miles N. The inlet is deep and extends 5 miles to the W. The best anchorage may be obtained in the N part of the bay. Small vessels with local knowledge can anchor in Caleta Wilson, 183m W of Islote Wake, in a depth of 40m. The anchorage is exposed to the N and cannot be recommended.

8.62 Seno Molyneux (50°17'S., 74°53'W.) is entered between Punta Rogers and Punta San Miguel, 1 mile N. The inlet extends 4 miles NW where a channel, which is clear of dangers, leads 1 mile N to the W end of Estero Temple. About

3.5 miles within the entrance to Seno Molyneux, Canal Grove branches SW for 15 miles to Canal Oeste.

Tidal currents in the fairway run NNW and SSE at rates of 2 to 3 knots.

Puerto Molyneux is 1 mile NNW of **Punta San Miguel** (50°18'S., 74°52'W.). A light is shown on the point. A buoy marks a rocky patch, 0.3 mile S of Punta San Miguel. Isote Romulo lies close off the NE shore of the inlet, 1 mile NNW of Punta San Miguel.

Anchorage may be obtained in Puerto Molyneux, in a depth of 36m, mud, with the S extremity of Isote Romulo bearing 275°, about 0.2 mile distant. This anchorage is the easiest of access in Canal Concepcion and is suitable for all types of vessels.

Isla Drummond-Hay (50°15'S., 74°49'W.) consist of two summits on its N side and is cone-shaped on its S side. Estero Temple and Estero Don Pedro, separated by Isla Chaine, are entered N of Isla Drummond-Hay, and unite with the head of Seno Molyneux. Good anchorage may be obtained by vessels with local knowledge off the N shore of Estero Temple, 2.5 miles within the entrance, close to the W end of Isla Chaine, in a depth of 27m, mud. It is not generally used because of the dangers in the approach channel. Estero Don Pedro affords anchorage 1 mile within the entrance, in a depth of 49m, mud.

8.63 Bahia Tom (50°12'S., 74°48'W.) is entered between Isote Devinish, 5.5 miles NNE of Punta San Miguel and Punta Mehegan, 1.7 miles NE. The bay consists of many small inlets affording anchorages near the main channel. When approaching from the N, Bahia Tom can be identified without difficulty.

Strong winds from seaward are seldom felt in these anchorages, which are more sheltered than others in the vicinity. Tidal currents in Bahia Tom never exceed 0.5 knot.

Estero Henderson is the N inlet of Bahia Tom and is entered between Isla Stratford and Punta Mehegan. This inlet is strongly recommended for vessels requiring to anchor in this vicinity, as it has the easiest access. Anchorage may be obtained, in a depth of 27m, sand and rock, with the W extremity of Isote Fletcher (50°11'S., 74°48'W.) bearing 177°, distant 0.1 mile. Isla Stratford, the S entrance point to Estero Henderson, shows a light.

Bahia Day (50°09'S., 74°47'W.) is entered N of Punta Whale, 1.2 miles NNE of Punta Mehegan. The bay has a confined anchorage, in a depth of 33m. Isote Cecil lies close offshore 0.5 mile N of Punta Whale.

Punta Brazo Ancho, the NE extremity of Isla Madre de Dios, is low, but the land within rises steeply to Monte Vereker, 1.5 miles NW. This mountain is prominent from the N or S. Isotes Mabel lies close off the point. Isla Topar lies 1.5 miles NE of Punta Brazo Ancho.

Canal Wide

8.64 Canal Wide is the continuation of the smooth water route N from Isla Topar, at the junction of Canal Concepcion and Canal Trinidad. The canal separates the S part of Isla Wellington from the mainland, and has a least width of 1.7 miles. From Cabo Somerset, the S extremity of Isla Wellington, the canal extends 10 miles NE and then 20 miles N to Punta Averell, the S end of Isla Saumarez.

Caution.—This canal was reported (1938) to be inaccurately charted.

Navigation in Canal Wide is often impeded by drift ice from Seno Eyre. Numerous large pieces of ice have been seen in the canal in June. In August (1934), icebergs were reported on both sides of the recommended track as far N as Estero Ringdove.

Estero White, on the W side of Canal Wide, is entered 6.5 miles NE of Cabo Somerset and extends 6 miles NW. The inlet is unsurveyed. Seno Europa, on the E side of the canal, is also unsurveyed.

8.65 Estuario Gage (49°54'S., 74°26'W.), on the W side of the canal, is entered SW of Punta Cameron, 12.5 miles NE of Cabo Somerset. The inlet is deep and the tidal currents strong. This inlet is not recommended as an anchorage. A light is shown on Punta Snell, 0.7 mile NE of Punta Cameron. Caleta Refugio, about 1.3 miles NNW of Punta Snell, affords anchorage to small vessels with local knowledge, in depths of 11 to 12m.

Seno Penguin, on the E side of the canal, is entered 3.5 miles E of Punta Snell Light. It has not been surveyed and in the spring is usually obstructed by ice. About 12 miles within the entrance, Seno Jarpa branches NE for 9 miles.

Glaciers descend to the head of both Seno Penguin and its tributary Seno Jarpa; both inlets are encumbered with floating ice for much of the year.

Caleta Sandy (49°47'S., 74°24'W.) lies 7 miles N of Punta Snell Light, on the W side of the canal. Small vessels can obtain anchorage in the middle of the cove, in a depth of 15m, but it is not recommended, as it is too restricted. A below-water rock, marked by kelp, lies in the N part of the cove; a rock, awash, lies close offshore in the S part.

Seno Antrim, entered between Caleta Sandy and Punta Beresford (49°46'S., 74°23'W.), extends 4 miles WNW. At its head, a narrow passage leads into Seno Interior. This inner part of the inlet forms two basins, connected by a boat passage. Both passages contain whirlpools. Caleta Elena is a sheltered anchorage on the S side of Seno Antrim, near its head. Vessels anchor, in 26m, between the entrance points to the cove. It is necessary to keep NE of a rocky ledge, marked by kelp, extending from the SE shore to the middle of the cove.

Estero Ringdove (49°45'S., 74°11'W.) on the E side of the canal, is entered 4.5 miles ENE of Seno Antrim. On the S side of the entrance, Caleta Richmond and Caleta Chacaburo afford anchorage for small vessels. There is a propane gas terminal at Caleta Chacaburo.

Isote Mason lies midway between Punta Averell, the S extremity of Isla Saumarez and Punta Baja (49°38'S., 74°19'W.). A light is shown on the S side of the island.

Isla Saumarez to Paso del Indio

8.66 At Isla Saumarez, which extends 13 miles N from Punta Averell, the charted route divides, the two parts unite again at the S end of Paso del Indio, N of Isla Saumarez. Isla Angle lies close W of the SW part of the island, the passage between these two islands has not been surveyed. Estero Backout is entered close S of Punta Patch (49°37'S., 74°27'W.). The inlet, which is narrow and tortuous, should be avoided.

Paso del Abismo (49°34'S., 74°28'W.) is entered 1 mile N of Punta Patch and extends 4.5 miles NNW between Isla Angle and Isla Wellington. The passage is deep and clear of dangers, but, owing to its narrowness, passage by night is not recommended. In autumn, when ice from the glaciers at the head of Seno Eyre comes down in large lumps, this passage is to be preferred to Canal Icy.

Estero Veto extends 2.5 miles W of the N end of Paso del Abismo and has not been surveyed. A flat reef of rocks, awash and marked by kelp, lies on the N side of the entrance. On the E side of the fairway, a below-water rock lies 0.6 mile SW of Punta Curle.

Regulations for Paso del Abismo.—Every vessel approaching Paso del Abismo from the S or N should sound one prolonged blast 0.5 mile before reaching Punta Patch or Estero Veto respectively, the signal should be answered in a similar manner by any vessel approaching from the opposite direction. The N bound vessel should wait until the S bound vessel has passed.

Vessels should establish communications on radio, on reaching the vicinity of the above positions.

8.67 Canal Escape (49°27'S., 74°27'W.) leads NNE for 7 miles from the N entrance point of Estero Veto. The canal is deep and clear of dangers, except in the vicinity of Punta Barclay (49°30'S., 74°27'W.). Roca Corn, with a depth of 5.2m, lies on the W side of the canal and is marked by a buoy. On the E side of the canal, foul ground extends 0.5 mile off Punta Barclay.

Canal Icy (49°36'S., 74°17'W.), which extends 7 miles NE, appears to be clear of dangers, but is less used than Paso del Abismo, due to the quantity of ice from Seno Eyre. Bahia Cascada on the SE side of the canal, affords anchorage to small vessels, but is exposed to the prevailing winds and is not recommended.

Seno Eyre is entered at Punta Chill, the SE end of Promontorio Exmouth. The inlet has very irregular depths, 7m being found near its head, where there are two large glaciers. Seno Falcon is entered at the S end of Seno Eyre, 3 miles E of Punta Chill. It also has several glaciers at its head. There are two coves on the N shore of Seno Falcon, with anchorages for small vessels, 1.5 and 7 miles within the entrance. Seno Exmouth branches 13 miles SE from Seno Eyre, 17 miles from Punta Chill.

Canal Grappler (49°29'S., 74°17'W.) is entered between Morro Escarpado and Cabo Colorado, 1 mile E. The canal is 10 miles long and appears to be free of dangers. The canal has a least width of 0.2 mile off Punta Hayman, the N extremity of Isla Saumarez. A light is shown on Cabo Colorado.

Puerto Micaela, on Isla Saumarez, is entered 2.7 miles NNW of Morro Escarpado. Anchorage may be obtained in the middle of Puerto Micaela, in depths of 42 to 50m, 0.1 mile offshore. A light is shown on the NE extremity of Isla Saumarez.

Puerto Grappler (49°25'S., 74°19'W.) is an excellent, well-sheltered harbor in the Exmouth Promontory, opposite the NE side of Isla Saumarez. Isla Cloue, in its entrance, shows so distinctly that it is impossible to mistake the position of this island. There is passage on either side of the island, but the E passage is the wider and better. The best anchorage for a large

vessel is 0.3 mile inside Isla Cloue, in 14 to 16m, but small vessels can anchor, in 10m, about 183m E of Islote Diamante. The holding ground in all parts of the harbor is good. A beacon stands on the summit of Isla Cloue. A light is shown on Punta Hayman, the N extremity of Isla Saumarez.

Paso del Indio

8.68 Paso del Indio, which separates Isla Wellington and Promontorio Exmouth, is the continuation of the charted route N from the junction of Canal Escape and Canal Grappler. It extends 17 miles N to Islas Harwood, which lies W of the fairway at the S end of Angostura Inglesa. There are several islets and rocks in the middle of the channel, with considerable depths between them. The least navigable width E and W of these dangers is 0.2 mile. The position of the beacons and buoys cannot be depended upon.

Puerto Horacio (49°21'S., 74°26'W.) lies on the W side of the fairway, 4.2 miles NNW of Punta Hayman. The port is narrow, deep, and affords anchorage to small vessels at its head.

Calata Grau lies about 0.8 mile E of Puerto Horacio. Vessels are afforded good anchorage in the middle of the cove, with depths of 30 to 34m, stones. The shores of the cove are free of off-lying dangers, except for Arrecife Dolores, which lies 0.2 mile ESE of the SW entrance point; the reef is marked by kelp, and the greater part of it is below-water or dries.

Islote Fantome (49°18'S., 74°24'W.) lies 0.2 mile off the W shore of Paso del Indio. Anchorage can be obtained close S of the islet, with its extremities bearing 343° and 016°, in a depth of 51m, sand, shells and rocks. It is feasible to anchor nearer the islet.

Grupo Covadonga consist of several islets, rocks, and shoals located in mid-channel, 0.8 to 2 miles N of Isla Crossover (49°17'S., 74°24'W.), which shows a light. A light is shown near the middle of Grupo Covadonga, on Islote Bouquet. A beacon stands on Islote Perch, 0.5 mile E of Punta Falsa (49°16'S., 74°25'W.).

8.69 Roca Vaudreuil (49°13'S., 74°22'W.) lies in mid-channel and is very dangerous to navigation. The rock is only slightly marked by kelp and is marked by a metal beacon. A patch of kelp is located 0.3 mile W of the rock.

Islotes Guia, on the NE side of Paso del Indio, consist of two low islets. A light marks the N extremity of the N islet. Estero Reindeer is entered E of Islotes Guia. It extends 2.5 miles ESE and has not been surveyed. Arrecife Gorgon, which dries, lies about 1.3 miles SW of Islotes Guia. A beacon stands on the reef. A below-water rock, marked by kelp, lies 0.5 mile NNE of the beacon.

Puerto Eden (49°08'S., 74°27'W.) lies on the W side of Paso del Indio, about 0.8 mile NW of Arrecife Gorgon. The port affords several good anchorages for all size vessels. The entrance is divided into two channels by Isla Carlos and Islote Dulce.

Caleta Lackawana is entered by a narrow channel on the S side of the approach to Puerto Eden. Small vessels, with local knowledge, can anchor in the middle of Caleta Lackawana, 0.2 mile inside the narrows, in a depth of 12m. The cove is land-locked and well sheltered, but is very restricted.

Arrecife Hammond, on the S side of Canal del Sur, is awash and marked by kelp, and lies about 0.3 mile W of Isla Carlos Light. A lighted buoy is moored close NE of the reef.

Islota Eden (49°09'S., 74°27'W.) lies in the middle of the approach to the main anchorage in Puerto Eden, and shows a light. A beacon stands on a rock close E of a point 0.1 mile NNE of Islote Eden. Three radio masts and a building stand near the W shore, 0.5 mile WNW of Islote Eden. A white cross stands on the summit of an islet, 0.7 mile NNW of Islote Eden. This mark is useful when anchoring. There is a mooring buoy 0.1 mile NW of Islote Eden.

The best anchorage in Puerto Eden is 0.2 mile NE of the radio masts, in depths of 22 to 26m. Vessels can also anchor, in depths of 15 to 38m, from 0.1 to 0.2 mile E of the mouth of a stream located 0.3 mile WSW of Islote Eden.

Anchorage may also be obtained SE of Puerto Eden, with Islotes Guia Light (49°10.5'S., 74°23.4'W.) bearing S, distant 1,000m, in depths of 30 to 40m, mud and shingle bottom. This anchorage is suitable for vessels of up to 180m in length, but is not recommended during N winds in excess of 25 knots.

Large vessels, not wanting to enter Puerto Eden, can anchor on the W side of Paso del Indio, 0.6 mile E of Isla Carlos Light, in a depth of 55m. The holding ground is good, and the berth is out of the swell. A lost anchor and cable lie near the berth.

A pilot boarding station is established about 0.6 mile ENE of Isla Carlos Light.

Caletita Malacca is entered by a narrow channel close E of Punta Oldfield, located about 0.6 mile N of Islote Eden. This small cove is land-locked, but confined. There is anchorage for small vessels, with local knowledge, in a depth of 13m, mud, 0.2 mile NE of Punta Oldfield (49°08'S., 74°26'W.).

Islas Harwood (49°07'S., 74°22'W.), at the N end of Paso del Indio, are two islets, close together, with their NE extremity 1.5 miles N of Islotes Eva. Isla Salamandra lies close N of Isla Morton, and Isla Henry lies between Isla Salamandra and Islas Harwood. The narrow channel between these islands should not be entered. Temporary anchorage can be obtained in the main channel E of Islas Harwood, where the depths vary from 25 to 65m, but the tidal currents here run strongly.

Approach to Angostura Inglesa

8.70 Angostura Inglesa, with its approach from the S, connects Paso del Indio with the S end of Canal Messier, 11 miles N. The approach is entered between Islas Harwood and Punta Halliday, 0.5 mile NE.

Bajo Capac (49°07'S., 74°22'W.), with a depth of 3m, lies W of the fairway, 183m NNE of Islas Harwood, and is marked by kelp and a lighted beacon, 6m high. A buoy is moored close NNE of Bajo Capac. Bajo Valverde, another rock with a depth of 3m, lies 0.1 mile WNW of Bajo Capac. Bajo Pascua, with a depth of 5.5m, lies 0.2 mile W of Punta Halliday and is marked by a buoy.

Seno Duque de Edimburgo is entered between Punta Pascua and Punta Paradise, 0.7 mile NW. This inlet is unsurveyed, but is reported to be free of dangers. No bottom at a depth of 65m has been found in the middle, nor have any anchorages been situated off its shores. The hills in the vicinity of the inlet rise to 202 to 300m, except at its N end where the land is low.

Bajo Memphis (49°05'S., 74°23'W.), a rock with a depth of 2.3m, lies over 0.5 mile WNW of Punta Paradise (49°06'S., 74°24'W.); it is steep-to and marked by a lighted buoy. A 14m patch lies 0.3 mile S of the shoal. North of Isla Adan, the approach to Angostura Inglesa is 1 mile wide as far as Isla Chinnock.

Isla Kitt, located 0.5 mile SSW of Punta Nickoll (49°01'S., 74°28'W.), the W extremity of Isla Chinnock, is fronted by kelp on its W side extending up to 183m offshore. An above-water rock lies 114m W and a shoal, with a depth of 4m, lies 183m SW of the W extremity of Isla Kitt. A beacon stands on the rock.

8.71 Caleta Lucas (49°00'S., 74°24'W.), E of Isla Chinnock, is entered through a narrow channel SE of the inlet. The channel is encumbered with kelp extending from the S end of the island, but there is a depth of 7m in the fairway, which lies close to the SE shore. Good anchorage for small vessels may be obtained in the middle of the cove, in depths of 18 to 20m, mud; large vessels anchor outside the entrance in a depth of 36m.

Estero Beauchamp is entered N of Punta Pemberton (49°01'S., 74°26'W.) on the W side of the channel. It is divided into two parts by a narrow channel between Punta Enrique and Punta Roberto.

The outer part of the inlet is deep, with depths of 16 to 20m, with a bottom of mud near the narrows. Its shores are fronted by kelp, which extends up to 183m offshore. Banco Florida, with a rock with a depth of less than 2m on its SE edge, lies 0.3 mile NE of Punta Roberto.

Puerto Simpson (49°01'S., 74°29'W.) is the inner part of Estero Beauchamp. Roca Elena, with a depth of 4.8m, lies close to the S end of a split extending 91m S from Punta Roberto (49°01'S., 74°28'W.). The entrance channel has a least width of only 68m, and is unsafe for vessels of more than 100m long and a 4.5m draft.

Puerto Simpson affords anchorage to vessels with local knowledge, 183m SE of the remarkable white patch, in a depth of 44m, mud, or, in a depth of 15m, 1.7 miles WNW of Punta Elena.

Angostura Inglesa

8.72 Angostura Inglesa (48°58'S., 74°24'W.), the narrowest part of the channel between Isla Wellington and the mainland, extends 4 miles NNE to Canal Messier. The entrance is between Isla Chinnock and Islitas Croft, close off the W shore 0.4 mile NW. Angostura Inglesa has a least width of 183m W of Islote Zealous, but it presents no great difficulty. As the narrows are tortuous, it is always advisable, at spring tides, to await slack water. Large vessel proceeding N should do it at Puerto Eden, or Puerto Gray if proceeding S. When proceeding with the wind and tide, passage should not be attempted if the wind is strong. This passage is suitable for vessels up to 180m in length. Time of passage is in daylight only.

Bajo Lookout, with a depth of 6.2m, and marked by kelp, lies W of the fairway 0.3 mile NW of Punta Nickoll, the W extremity of Isla Chinnock. A lighted buoy is moored close NE

of the shoal. A patch, with a depth of 12m, lies 0.4 mile WNW of Punta Nickoll.

Banco Mindful, with depths of 5 to 7m on its E side, is an area of foul ground extending 0.2 mile E of Islitas Groft. A 13m patch lies W of the bank. A buoy is moored close off the E end of the bank, 0.5 mile N of Punta Nickoll. Isla Wallace, 0.2 mile NNE of Islitas Croft, is an islet, surrounded by kelp, off Bahia James, a deep cove.

Islote Zealous (48°59'S., 74°24'W.) lies on the E side of the fairway, 1.5 miles NNE of Punta Nickoll. Roca Zealous, with a depth of 4.5m, lies 91m WSW of Bajo Zealous. The rock forms the edge of Bajo Zealous, a shallow rocky bank marked by kelp, extending SW from the islet and 0.1 mile N to the shore. A buoy is moored close W of Roca Zealous.

8.73 Punta Cedar (48°59'S., 74°27'W.) lies on the E side of the fairway. A buoy is moored 91m W of the point on the NW edge of the bank, covered with kelp, which extends from the E shore close S of the point.

Isla Medio-Canal (48°58'S., 74°24'W.) lies 183m W of Punta Cedar, with Roca Hall, awash, close off its SW end. Two beacons stand on the N and S extremities of the island. The island can be passed on either side, but large vessels should use the channel W of the island, as it is wider, deeper, and less affected by the tidal currents.

Islote Clio, NW of the fairway, lies 0.3 mile N of Punta Cedar. The islet is easily identified by a prominent white cross standing in its center. A shoal, with a depth of less than 6m, lies about 137m E of the islet. Bajo Caution Norte, a rocky pinnacle with a depth of 6.2m, lies 0.2 mile E of Islote Clio. A shoal, with a depth of 3.4m, lies close NW of the rock. The kelp on this shoal is run under by tidal currents and is not always visible.

Two leading beacons on the E side of the narrows stand 183m apart near the SW end of Isla Disraeli. The beacons form the course to clear the above shoals.

Isla Cavour lies with Punta Hume, its NW extremity, 1.7 miles NNE of Punta Cedar. Kelp extends up to 183m offshore from the W and SW shores of the island. A beacon stands on the summit of the island. A beacon stands on Punta Hume.

8.74 Caleta Hoskyn (48°57'S., 74°26'W.), on the W side of the N entrance of Angostura Inglesa, is formed on its N side by Isla Lamarmora, joined to the mainland at low water. Anchorage may be obtained in the middle of the cove, in a depth of 24m, mud, 0.1 mile WSW of Punta John. Although a considerable tidal current is felt near HW, a vessel can lie here in perfect safety. The approach between the kelp on either side, S of Punta John, which is steep-to, is 137m wide. Care must be taken when entering or leaving as the tidal currents sweep very strongly across the approach S of Islote Loney.

Tides—Currents.—The tidal currents in Angostura Inglesa attain rates of 6 to 8 knots at springs. The N current begins about 45 minutes after HW, and the S current about 45 minutes after LW, by the shore.

Predicted times of slack water are given in Chilean tide tables. The actual time of slack water occasionally differs by as much as 30 minutes, and in special circumstances by as much as 1 hour, from the predicted time.

When N winds are blowing in Canal Messier, the S current in Angostura Inglesa continues for 2 or 3 hours after HW, and the N current is only of short duration. Strong N winds can cause the S current to attain a rate of 8 or 9 knots near springs.

Signals.—As it is advisable to wait for slack water to pass through Angostura Inglesa, vessels bound in opposite directions, being unable to see each other, might meet at the critical part of the narrows. To avoid this, vessels proceeding S, when abeam of Punta Maude, off the N entrance, should sound one long blast on the whistle or siren, a second long blast should be sounded when Isla Disraeli is abeam. A vessel hearing a reply to her signal should wait off Isla Disraeli until the vessel from the S has passed.

Vessels proceeding N should make a similar signal when off Punta Nickoll, at the S entrance, and a second long blast should be sounded when Islote Zealous is abeam.

Warships shall discharge a gun instead of the whistle signal.

Assistance in estimating slack water is provided on request by the radio station at Puerto Natales.

Regulations.—Passage through the narrows can only be made during daylight hours. Vessels are limited to a maximum length of 150m, a maximum beam of 23m, and a maximum draft of 6.3m. Vessels over 120m long should request assistance from a support vessel. Vessels proceeding from the W have priority.

Vessels should give 1 hour advance notice of passing through the narrows on 2182 kHz and VHF channel 16. From 1 hour before the expected time of passing through Angostura Inglesa, in either direction, and also on sighting other vessels, a radio watch is to be kept, and masters are to broadcast every 15 minutes, the time they will pass Isla Medio-Canal, their position relative to a well-known object and the prevailing weather conditions.

When navigating Angostura Inglesa, vessels must observe strictly the International Regulations for Preventing Collisions at Sea, especially the provisions regarding sound signals.

Canal Messier

8.75 Canal Messier extends N from the N end of Angostura Inglesa for 72 miles to Bahia Tarn, on the S side of Golfo de Penas. The canal lies E of the N part of Archipelago Wellington, and is from 2 to 5 miles wide. There are several bold headlands and the land within the shores is mountainous, with lofty snow-capped peaks on either side. The channel is open and free from dangers, except for Bajo Cotopaxi. There are numerous inlets which can be entered with perfect safety, but the depths in most of them are too deep for anchoring.

Islote Haycock (48°56'S., 74°23'W.), on the E side of Canal Messier, is located close N of the N end of Isla Cavour. Roca Entrada, above-water, lies a little more than 0.5 mile NE of Islote Haycock. This rock forms a good mark for identifying the N entrance to Angostura Inglesa.

Bahia Magenta is entered between Islote Haycock and Roca Entrada. The bay extends 3 miles S and has not been completely surveyed. Isla Barton, near the head of the bay, is surrounded by foul ground, marked by kelp, which extends 0.2 mile N and SW of the island.

Isla Thomas (48°56'S., 74°24'W.) lies on the W side of the S entrance to Canal Messier. When seen from the N, it can be

identified by a well-defined peak near its center. Isla Moat, about 0.3 mile NW of Isla Thomas, has three peaks which lie in a N and S direction, the center peak being the highest. Isla Isabel lies on the E side of the canal, 0.7 mile ENE of Isla Thomas.

Bahia Libertá, on the E side of the canal, is about 1 mile wide at its entrance, and lies N of Isla Isabel. Bajo Durban, with 10m over it, lies on the S side of the entrance to Bahia Libertá. Bahia Flindt, a deep cove, lies on the S side of the bay.

Puerto Gray (48°55'S., 74°19'W.) lies on the E end of Bahia Libertá. The recommended anchorage is in a depth of 30m, mud. The anchorage is only 0.2 mile wide, and it is necessary for all but very small craft to moor. Large vessels can moor at the anchorage. A large lagoon lies at the head of the harbor and can be entered by boats at HW. Roca Talisman, awash, lies about 0.5 mile within the entrance to the harbor, on the E extremity of a shallow spit with depths of less than 5.5m. A beacon stands close NW of a light shown from the N summit of the peninsula, which forms the W side of Puerto Gray.

8.76 Bahia Halt is entered NW of Punta Halt (48°55'S., 74°22'W.) and extends about 0.8 mile E. It has irregular depths including an 8m patch located 0.1 mile NNE of Punta Halt. Small craft can obtain anchorage, in a depth of 47m, in the inner part of the bay, which is only 91 to 183m wide. A coaster might be able to obtain anchorage in the outer part of the bay where depths vary from 36 to 75m.

Isla Daly (48°52'S., 74°29'W.), an islet on the W side of Canal Messier, lies 3 miles NNW of Isla Moat. When seen from the N, the outline of the islet has a rounded aspect near the center, and its E and W extremities appear as bluff points. Estero Seymour is entered 1 mile SSW of Isla Daly and is of little importance. Estero Denman is entered 2 miles E of Isla Daly and is also of no importance.

Bajo Cotopaxi (48°46'S., 74°28'W.), a rock with a depth of 4m, lies near mid-channel on the W side of the canal. The kelp on this danger is only visible when the sea is smooth. There is a depth of 5m, 0.5 mile N of the rock. A stranded wreck, marked by a light, lies on the S end of the rock.

Bahia Tribuna is entered between Punta Lautaro, 2.5 miles SE of Bajo Cotopaxi, and Punta Yeleho, 3.5 miles NNE. Isla Williams lies across the entrance to the bay and shows a light on its S end. Anchorage may be obtained in the bay, in depths of 24 to 58m, good holding ground. The depths in the bay are very irregular and the N part is too deep for anchoring. With N winds, the recommended berth is 0.3 mile SSW of the light in a depth of 37m, and with the NW winds, 0.2 mile SE of the light, in a depth of 38m. A foul area lies about 0.3 mile, bearing 182°, from the light. A cove, close E of Punta Lautaro, affords anchorage for small craft.

Caution.—The channel between Bajo Cotopaxi and Isla Williams has been reported (1991) to be 0.28 mile narrower than charted.

8.77 Islotes Direccion (48°41'S., 74°26'W.) lie near a deep channel, 5 miles N of Isla Williams. A light is shown on the S extremity of Islotes Direccion. Anchorage may be obtained about 0.4 mile NE of Islotes Direccion Light, in a depth of 47m. Strong E sets towards the islets have been reported.

Seno Iceberg is entered between Punta Yelcho, 3 miles SE of Islotes Direccion, and a point 2.2 miles N. The inlet extends 12.5 miles E to the foot of a glacier. The inlet is deep and no anchorages have been found. Three miles within the entrance on the S side, a shallow arm branches 7 miles SE. Estero Farquhar, 2 miles within the entrance on the N side, leads 5 miles NE, and another arm branches 3 miles N, both these arms are unsurveyed.

Abra Search (48°42'S., 74°32'W.), on the W side of Canal Messier, is entered S of Cabo Nelson, 2.5 miles W of Islotes Direccion. It is 1 mile wide and extends 4 miles WSW to Punta Glucks, where it joins Canal Adalberto.

Seno Wald extends 9 miles S from the junction of Abra Search and Canal Adalberto. Isla Schroder is an islet in the entrance to the inlet, 1.7 miles S of Punta Glucks (48°43'S., 74°36'W.). The inlet affords anchorage, in a depth of 18m, 183m offshore.

Punta Bremmer (48°39'S., 74°28'W.), 2.5 miles NNE of Cabo Nelson, is the E extremity of Peninsula Thornton, which is steep and rugged. A flat-topped mountain rises 2 miles NNW of Punta Bremmer. Two points lie at the N end of Peninsula Thornton, about 5 miles NNW of Punta Bremmer; two rocks lie off the W point. A large bay lies between the N extremity of Peninsula Thornton and a point 5 miles NNW. The bay is deep, but has not been surveyed.

Canal Farquhar lies on the E side of Canal Messier and is entered SE of Isla Boxer (48°33'S., 74°21'W.). Estero Bernardo is the continuation of Canal Farquhar from its N end, and extends 12 miles SE to the foot of a glacier. Canal Farquhar and the inlets and channels leading from it have not been surveyed and should only be entered with local knowledge.

8.78 Bahia Lion (48°33'S., 74°25'W.), off the S side of Isla Farquhar, forms the W end of the narrow channel between Isla Boxer and Isla Farquhar, and is almost entirely unknown. Caleta White Kelp lies on the N side of the bay, but is very restricted and does not serve as a good anchorage.

Isla Middle, on the E side of Canal Messier, lies 1.5 miles NW of Punta Caffin (48°31'S., 74°27'W.). The island has two peaks which are very prominent from the N and visible as soon as a vessel enters Canal Messier from Bahia Tarn. The two peaks are not seen separately until the island is almost abeam. A light is shown from a square concrete tower, 3m high, on the W extremity of the island.

Caleta Connor (48°30'S., 74°26'W.) is entered 1 mile NNE of Punta Caffin. Anchorage may be obtained in the middle of the cove, in a depth of 24m, NE of the beacon on Punta Goulden. If required, a hawser can be secured to a conspicuous tree, with notice boards on it, standing on the SE side of the cove near its head. The anchorage is well-sheltered from the NW and has good holding ground. Violent squalls are not experienced, even when there are strong winds in Canal Messier.

Abra Cuthbert, on the W side of the canal, is entered 1.5 miles SW of Islotes Arturo (48°25'S., 74°35'W.). It extends 3.5 miles W and has not been surveyed. There are two islets in the S half of the entrance, and two islets, close offshore, 1 mile W of the N entrance point.

8.79 Isla Van de Meulen (48°15'S., 74°29'W.) lies with its S extremity 1.7 miles N of Morro Hens. It is separated from

Isla Caldeleugh, SE, by an unnamed channel which extends 8 miles NE to Isla Justiniano, a small island off its NE entrance. Three miles within the entrance a narrow inlet branches SE for 8 miles, almost dividing Isla Caldeleugh into two parts. From Isla Justiniano, a channel on the NE side of Isla Caldeleugh extends 7 miles SE to Isla Ofhidro, and then continues between these islands for 5.5 miles to join Canal Farquhar. Seno Horacio, entered 1.5 miles NW of Isla Ofhidro, extends 12.5 miles E. The channel leading NW from Isla Justiniano, separating Isla Van de Meulen from Peninsula Swett on the mainland, extends 12 miles to the W end of Seno Rowley. None of these channels and inlets have been surveyed, and should not be entered without local knowledge.

Morro Cock forms the W extremity of Isla Van de Meulen. The headland appears from the S as a steep cliff with a smooth top. When seen from the N, it is very remarkable because of its peculiar shape. A light is shown from this headland.

Estero Van de Meulen (48°15'S., 74°32'W.) is entered close E of Morro Cock and extends 7 miles NE. The inlet affords a very indifferent anchorage with little shelter. The inlet has not been surveyed and should not be entered without local knowledge.

Seno Hornby, on the W side of Canal Messier, is entered between Peninsula Negra and Isla Schafer, 2 miles NNW. Seno Otto is entered S of Isla Hornby and extends 11 miles WNW. This inlet is deep, but no anchorages have been found. Canal Albatross is approached from the N through Seno Hornby, but is unsurveyed and should not be used without local knowledge.

Canal Barbarossa is approached through Seno Hornby and Paso Schlucht, a narrow channel entered NW of Isla Schlucht. The canal leads WNW for 15 miles to Canal Fallos. The canal is unsurveyed and should not be used without local knowledge.

Rada Bachem (48°08'S., 74°50'W.) is located at the NE end of Paso Schlucht and should not be approached without local knowledge. Anchorage may be obtained 0.5 mile within the entrance to the channel in a depth of 25m, 0.1 mile E of Punta Bachem.

Isla Millar, on the W side of Canal Messier, lies with its E extremity 9 miles N of Peninsula Negra, and extends 8 miles N to S. The summit of Isla Millar is prominent from the N. A range of mountains run the whole length of the island. A light is shown on the E point of the island.

8.80 Seno Rowley (48°04'S., 74°28'W.), on the E side of Canal Messier, is entered N of Peninsula Henry, and extends 10.5 miles NE, but has not been fully explored. Two arms branch off from the inlet, 3 and 6 miles from the W extremity of Peninsula Henry.

Puerto Island is a land-locked harbor, with good holding ground, extending 0.5 mile NE from Punta Fleuriais, located 3.7 miles NNW of Peninsula Henry. Islote Phipps lies 183m off Punta Fleuriais. Anchorage may be obtained in a depth of 35m, mud, 183m NNE of Islote Phipps. Small vessels can anchor 250m from a large waterfall, which descends at the head of the harbor, in a depth of 18m, securing the stern to trees on the shore as there is not room to swing. Large vessels can anchor outside the harbor in a depth of 27m, with Punta Fleuriais bearing 353° and the S end of Islote Phipps bearing 059°.

Paso Pluddemann (47°59'S., 74°48'W.) leads 6 miles S between Isla Millar and Isla Juan Stuvan. As the pass is

unsurveyed, it should not be used without local knowledge. From the S end of Paso Pluddemann, a narrow channel leads 15 miles WNW and then N between Isla Juan Stuvan and Isla Jung Frauen to Paso del Sud-Oeste.

Bahia Fatal, a narrow inlet on the W side of Paso Pluddemann, is entered 1.2 miles WSW of the N end of Isla Millar. A small cove, with a narrow entrance and deep inside, lies within the inlet Bahia Fatal; it is not recommended as an anchorage.

Isla Penguin (47°49'S., 74°48'W.) is located off the NE end of Isla Juan Stuvan and extends 1 mile NW. The island, which forms the W entrance point of the N end of Canal Messier, can be approached within a distance of not less than 0.5 mile. The island has a flat summit and is difficult to distinguish from N. Paso Tate separates the island from Isla Juan Stuvan, 183m wide and obstructed by rocks, marked by kelp, with depths of 5m. A light is shown on the NE extremity of the island.

Caleta Austral (Puerto Austral) lies between Isla Penguin and Isla Juan Stuvan, W of Paso Tate. The cove affords the best anchorage in the vicinity. The holding ground is good, the depths are convenient, and it is well-sheltered. The recommended anchorage lies 0.3 mile SE of the W end of Isla Penguin, in a depth of 24m, hard white mud. The cove can be entered by Paso Occidental, SW of Islote Home, or by Paso Oriental, between Isla Penguin and Islote Patricia. Paso Oriental should be used in preference to Paso Occidental, as it is 0.2 mile wide and less water than charted may exist in the latter.

8.81 Grupo Baker, on the E side of the N end of Canal Messier, occupies the greater part of the entrance to Seno Baker, between Peninsula Swett and Peninsula Larenas, 15 miles NNW. The group consists of Isla Orlebar, Isla Zealous, Isla Porcia, and smaller islands and islets separated by narrow and deep channels.

Isla Orlebar (47°57'S., 74°36'W.) lies 3 miles E of Isla Millar and is separated from Peninsula Swett by Canal Somerset, which leads 5 miles NE of Canal Baker and has a least width of 0.7 mile. Isla Tito lies off the N side of Isla Orlebar and is separated from it by Canal Tito, which is 2 miles long and very narrow. An islet and some rocks lie close off the E end of Isla Tito (47°55'S., 74°36'W.).

Caleta Hale lies on the W side of Isla Orlebar and is entered 2 miles N of the SW end of the island. Anchorage may be obtained for moderate size vessels, in a depth of 30m, 0.4 mile W of Monte Orlebar. This anchorage is sheltered except during strong NW winds, when fierce squalls from between NW and NE may be experienced. Anchorage may also be obtained in the entrance to the cove, 0.1 mile NNE of Islotes Billiard, in a depth of 64m. There is a rock, with a depth of 13m, 183m N of this anchorage. A below-water rock has been reported to lie 45m NW of this anchorage.

Canal Kruger (47°56'S., 74°39'W.) separates Isla Orlebar and Isla Tito from Islita Alert, Islita Scylla, and Isla Scout to the W, Isla Zealous to the NW, and Isla Porcia to the N. The channel enters Canal Baker at Punta Joubert, the SE point of Isla Porcia. The fairway is clear of dangers and deep. Islotes Origen, 1m high, lie near mid-channel NW of Isla Tito. These two rocks can be passed on either side, but the passage S of them is wider.

Isla Zealous lies with Punta Braua, its NW extremity, 7 miles NNW of Islita Alert. Above and below-water rocks extend 0.5

mile from the point. A beacon stands on the SW extremity of the island. Canal Cronje extends 4.5 miles N from Canal Kruger to Punta Canarro, the NW point of Isla Porcia. Anchorage may be obtained, in case of necessity, among the several islets at the S entrance to the canal in a depth of 18m, but is exposed to N winds. Local knowledge is necessary both for the anchorage and Canal Cronje.

Isla Sombrero (47°48'S., 74°42'W.), N of Isla Zealous, is the N island of Grupo Baker. The channel between Isla Zealous and Isla Sombrero has a least width of 0.5 mile, and is clear of dangers. When passing through, a mid-channel course should be maintained. Anchorage, providing shelter from NW, may be obtained in a small bay with good holding ground on the SE side of Isla Sombrero, with the island mountain peak bearing 330° and the NE extremity of Isla Zealous bearing 097°. The depths in this bay decrease suddenly to 5m close to the kelp which fringes the shore. During E. winds, vessels should anchor farther E, in a depth of 55 to 73m.

8.82 Bahía Tarn (47°44'S., 74°47'W.), on the S side of Golfo de Penas, is the N approach to Canal Messier and also the approach to Seno Baker. Islas Ayautau lie on the E side of the bay about 4 miles off the mainland. They serve as an excellent mark to steer for in making Canal Messier from Golfo de Penas. The passage between the islands and the mainland appears to be foul. Bajo Sakkarah, with a least depth of 7.8m, lies 3 miles NW of Punta Oscar.

Isla Schroder, the SE island of Archipiélago Guayaneco, lies with its E end 3 miles NW of Isla Penguin. Puerto Ballenas lies on the SE side of Isla Schroder and affords anchorage off its entrance, in a depth of 20m, 183m from the W shore with the SE end of Isote Jaures bearing 023°, distant 0.1 mile. The cove is foul.

Caleta Ideal (47°47'S., 74°55'W.) is located on the SW side of Isla Schroder. Anchorage is afforded 0.1 mile NNW of Isla Porvenir, in a depth of 13m, or near the middle of the cove, in a depth of 18m, but the holding ground is poor.

Isla San Pedro lies 6.5 miles NW of Isla Penguin. A light is shown from the NE side of the island. San Pedro Naval Radio Station, situated adjacent to the light tower, maintains watch on VHF. A small pier, marked by a wooden cross, is situated 0.5 mile NE of the S end of the island. Vessels with local knowledge can anchor, in 15m, about 1 mile WSW of the S end of Isla San Pedro.

Bahía Acosta (47°44'S., 74°45'W.) lies SW of Isla San Pedro and Isletas Albertina, N of the foul ground extending from Isla Schroder. The bay is easily approached and has anchorage space for several vessels of moderate size. The bottom is very even, consisting entirely of sand. Although strong winds are felt here, they are generally constant in direction, while the squalls within the bay are less violent than those harbors surrounded by higher land. Some sea is said to reach the bay through the NW entrance. The best entrance to Bahía Acosta is between Isla San Pedro and Isletas Albertina. The SE entrance, between Isla Schroder and Isletas Albertina, is not recommended as rocks and other dangers lie off it.

Puerto Escondido is entered from Bahía Acosta, between Isla Guillermo and the coast of Isla Wager, 183m W. The cove affords good anchorage for small vessels, sheltered from all winds and with good holding ground, 0.4 mile S of Isla Guil-

lermo, in a depth of 18m, where the channel is 0.5 mile wide. The entrance is not easy to identify as the coast of Isla Wager is low and wooded, and similar in appearance to Isla Guillermo.

8.83 Seno Baker (47°48'S., 74°38'W.) is entered N of Isla Sombrero and extends 9 miles ESE to Punta Jilguero, where it divides, N to Canal Martinez, and S to Canal Baker. Estero Eloisa is entered 2.5 miles NNE of Isla Sombrero and has not been surveyed. Estero Nicholas, entered 3 miles NW of Punta Jilguero, is 11 miles long and also has not been surveyed.

Puerto Francisco is a small cove on the N side of the Seno Baker, midway between Estero Eloisa and Estero Nicholas. At the head of the cove, a very narrow channel, with a least depth of 4.1m, leads into a landlocked basin. Anchorage may be obtained either N or S of the rocky patches on the bank extending SE from the W entrance point, in depths of 15 to 26m. The S berth is exposed NW to the seas coming in from Golfo de Penas.

Canal Baker, which has a least width of 1.5 miles, is entered W of Punta Jilguero and leads S as Canal Joubert for 5 miles, and then turns ESE at Punta Baker, the W extremity of Isla Merino Jarpa. Drifting logs often obstruct the canal and adjacent channels. Care is necessary particularly when navigating at night.

Large masses of ice are constantly calved from Ventisquero Jorge Montt (48°20'S., 73°35'W.), which descends to the S side of the head of Canal Baker.

Caleta Dewett (47°52'S., 74°33'W.), on the W side of Canal Joubert, is entered 3 miles SW of Punta Jilguero. Caleta Dewett affords temporary anchorage for coasters in good weather. The recommended berth is in a depth of 31m, stones, about 275m NNW of the S entrance point.

Isla Merino Jarpa extends 28.5 miles from Punta Baker, and attains an elevation of 1,092m at its E end. The coast of the island is clear of dangers, steep-to, and indented by small inlets. It is separated from Isla Vicente by Canal Sierralta, which extends 8 miles NE from Punta Baker to join Canal Martinez. The channel has a least width of 0.2 mile, and can safely be navigated in mid-channel. Puerto Larenas affords the only anchorage on the S side of the island. Small vessels with local knowledge, can anchor in the middle of the cove, in a depth of 46m, good holding ground.

Estero Nef (48°07'S., 74°16'W.), on the S side of Canal Baker, is entered 10 miles ESE of Punta Baker, between Punta Stony and Punta Carpa, 1 mile E. The inlet divides into two arms at its S end. Brazo Terminus, the W arm, leads 4.5 miles S, and Brazo Codo, the E arm, trends SSE for 3.5 miles and then turns ENE for 4 miles.

8.84 Puerto Tres Meses (48°12'S., 74°16'W.), on the W side of the entrance to Brazo Terminus, is entered 0.5 mile W of Punta Castaneda. The cove has depths of 35m, 0.3 mile from its head, but the W part of its head is shallow. The outer part of the cove is too deep for anchoring, but anchorage may be obtained in the middle of the cove, 0.1 mile SW of the passage between the two islets, in a depth of 35m, mud and stone.

Puerto Cueri-Cueri, on the S side of Canal Baker, is entered 1.7 miles E of Punta Carpa (48°01'S., 74°18'W.). Anchorage may be obtained 0.4 mile from the head of the inlet, where it is 0.2 mile wide in a depth of 13m, mud, good holding ground

and sheltered from all winds. In the approach to the anchorage the inlet has a least width of 0.1 mile, with a least depth of 12m. With N winds greater than force 5, strong currents develop in the entrance to the cove setting inward and heavy rip-tides form forcing a vessel off her track and making handling difficult. Estero Amengual and Estero Casma, entered 4.5 and 6 miles, respectively, E of Punta Carpa, are very deep and narrow, being useless as anchorages.

Canal Troya (47°56'S., 73°49'W.), between Isla Alberto Vargas and Isla Merino Jarpa, trends NNE to join Canal Martinez, and is 4 miles long and 1 mile wide. The greatest depths in this channel are off the W shore. During a falling tide the tidal current runs S at a rate of 3 knots, and at this time the water is nearly fresh, being fed from the Rio Baker. After entering Canal Baker, the tidal current sets towards Punta Llay-Llay on the S shore.

Puerto Brown, on the S side of Canal Baker, is situated at the N end of a bay between Punta Payaso (48°01'S., 74°02'W.) and Punta Laura, 6.5 miles ESE. Anchorage may be obtained, in a depth of 45m, with moderate shelter, in the middle of the bay formed by Punta Teresa, the SE entrance point, and an islet, 0.3 mile SW. During strong W or SW winds, the squalls are very heavy here.

Between Punta Laura (48°03'S., 73°53'W.) and Punta Llay-Llay, 3.7 miles E, there is a deep bay with Estero Angamos at its head. This inlet has not been surveyed, but has been entered and reported that navigation presents no difficulty. Anchorage can be obtained, in a depth of 42m, 0.1 mile offshore on the E side of the inlet near its head.

Puerto Valdes (48°05'S., 73°51'W.) is a cove on the E side of the entrance to Estero Angamos. Foul ground, with depths of 1 to 6m, extends 0.1 mile N from the small peninsula on the S side of the cove. Anchorage may be obtained, in depths of 33 to 43m, mud, 0.1 mile SE of the N end of the peninsula. Small vessels can anchor 0.2 mile farther SSW, toward the head of the cove, in depths of 11 to 18m.

Puerto Alvarez is an anchorage off the NE side of Islote Alvarez, which lies close off the SE side of the entrance to the unsurveyed Estero Landgren. Anchorage may be obtained, in a depth of 16m, with the outermost rock N of Islote Alvarez bearing 321°, distant 0.3 mile or farther off the islet. The best berth is just S of the alignment of the rock with a prominent waterfall on the NW shore of Estero Landgren.

8.85 Canal Plaza (47°58'S., 73°41'W.), E of Isla Alberto Vargas, separates the island from Peninsula Videau. The canal is 6 miles long and leads to Canal Martinez. The canal is tortuous, with a least width of 0.3 mile in the middle, with its greater depth towards the E shore.

Puerto Contreras is situated on the E side of Isla Alberto Vargas in the middle of Canal Plaza. Its position can be identified by a remarkable waterfall on the E side of Canal Plaza, 0.7 mile E of Punta Obscuro. The fairway in the entrance is deep, but an 8m shoal patch lies about 0.1 mile SSW of Punta Obscuro. Anchorage may be taken, in depths of 18 to 20m with Punta Obscuro bearing 056°, distant 0.2 mile. Vessels up to 60m in length and a draft of 4.5m can enter the bay 1 mile W of Punta Obscuro, where they can anchor, in a depth of 12m, over a bottom of mud. When approaching Puerto Contreras keep nearer to the S shore to avoid a rocky shoal,

with a depth of less than 2m, lying 0.7 mile W of Punta Obscuro.

Estero Montegro, on the N side of Canal Baker, is entered 6 miles E of Punta Llay-Llay. It extends 4.5 miles ENE, but has not been surveyed.

Isla Francisco (48°07'S., 73°39'W.) lies near mid-channel, 4 miles ESE of Punta Llay-Llay. The channel SE of the island has not been surveyed. Tenedero Fuentes affords anchorage on a bank extending 0.5 mile offshore, close N of the E extremity of the island, but local knowledge is necessary.

Fondeadero Pedreros lies between the two S islets of the chain extending from Isla Francisco, 0.7 mile NW of Isla Faro. It affords anchorage to small vessels with local knowledge, in depths of 20 to 30m, good holding ground of mud, and a swinging radius of 0.1 mile. The anchorage is exposed and is not recommended in bad weather. Small icebergs drift down to the anchorage during the season of the thaw. Large pieces of ice fill the area S of Isla Faro.

8.86 Tenedero Rio Pascua (48°15'S., 73°26'W.), on the S side of Canal Baker, lies close E of Punta Pisagua, 2 miles WSW of Punta Steele. The anchorage is W of the S end of the delta of the Rio Pascua, having depths of 40 to 60m with Punta Pisagua bearing 311° and Punta Steele bearing 057°. A small vessel can anchor 183m from a tree, with a notice board on it, in a depth of 18m, mud.

Estero Steele forms the head of Canal Baker. The shores are steep and wooded, with depths of more than 50m in the middle of the inlet. Two miles S of the head of the inlet, there is a narrows, 70m wide with depths of 13 to 16m, and a bottom of mud. Anchorage may be taken immediately S of the W entrance point to these narrows in a depth of 30m, 183m offshore. If necessary, the vessels stern can be secured to trees on the shore.

Caleta Buzeta (48°11'S., 73°19'W.), the best anchorage at this end of Canal Baker, lies on the E side of Estero Steele, 4 miles ENE of Punta Steele. The channel SE of Isla Julia (48°12'S., 73°20'W.) is shallow and should not be used. The general depths within the cove are from 8 to 12m, mud bottom.

Two anchorages are recommended, although a vessel can anchor anywhere in Caleta Buzeta according to draft. The N berth is with an above-water rock close of Punta Vasquez bearing 001°, distant about 0.1 mile, in a depth of 11m. A better and more spacious anchorage is with the same rock bearing 009°, distant 0.3 mile. This anchorage is suitable for vessels drawing less than 7m, the sterns of which can be secured to the S shore.

8.87 Canal Martinez, the N portion of Seno Baker, is entered between Punta Jilquero, on the W side of Isla Vicente, and Isletas Boers, 1 mile N. The canal is tortuous and extends E for 42 miles, where it is prolonged E by Estero Mitchell for another 14 miles. The channel is less than 1 mile wide for a great part of its length. The narrowest part is Paso Termopilas, which is only 0.1 mile wide, 14 miles within the entrance. The tidal current in this pass runs at a rate of 4 knots.

Isletas Boers (47°49'S., 74°30'W.) form the N entrance point to Canal Martinez and must be passed to the S when entering the canal. A rock, 2.5 miles NE of Isletas Boers, is the only

danger in the W part of the canal. Many of the inlets in the W part of the canal are unsurveyed and should be avoided.

Paso Termopilas branches NE at the W end of Isla Irene (47°50'S., 74°04'W.). From the W entrance to the passage, Estero Gonzalez extends ESE for 7 miles, but is deep and of no use to shipping. The channel trends E from the pass for 4.5 miles to Punta Vicente, the NE end of Isla Irene, where it turns S for two miles.

Puerto Merino Jarpa is entered 1 mile NE of Punta Vicente, and is the best anchorage in Seno Baker, being well-sheltered with good holding ground. The inlet extends 1 mile N and forms two coves. The channel leading to the inner cove has a navigable width of 183m between shoals on either side. Anchorage may be obtained in the middle of the outer cove, in depths of 12 to 16m, with Punta Merino, the E entrance point, bearing 140°. Small vessels can anchor in the inner cove, which is 0.2 mile wide, in a depth of 13m, mud. When entering the inner cove, keep closer to the W side of the channel, as there are rocks, which dry, 91m off the E shore.

Puerto Bordali (47°49'S., 74°03'W.), on the E side of the channel, is entered 1.2 miles SSE of Punta Merino Jarpa. Two small islets lie close of the W entrance point, which is formed by a small peninsula extending SW. There is anchorage on the W side of the N of two coves at the head of the inlet, in depths of 12 to 16m. The head of this cove is shallow and should not be approached.

Caleta Gallardo is a small cove on the N side of the channel, midway between Punta Ninfa and Punta Baal (47°52'S., 73°56'W.). The cove affords anchorage to a single small vessel.

Caleta Espinoza (47°54'S., 73°54'W.) lies in the narrow channel between Isote Lucano and Isla Merino Jarpa. Small vessels with local knowledge, may obtain anchorage here, in depths of 25 to 29m, mud, with the SE point of Isote Lucano bearing 043°.

Estero Steffen, on the N side of Canal Martinez, is entered E of Punta Steffen (47°49'S., 73°46'W.), 7.7 miles ENE of Punta Baal. It extends 11 miles N and NE and is deep as far as the mouth of the Rio Huemules, 8 miles from the entrance on the NW side.

8.88 Caleta Maria Elena (47°46'S., 73°44'W.) is a cove on the E side of Estero Steffen, 2.7 miles NNE of Punta Steffen. In good weather, anchorage may be obtained SW of the creek which flows into the center of the cove, 0.1 mile offshore, with good holding ground.

Puerto Sargento, in Estero Steffen, lies between sandbanks which project SE from the mouth of the Rio Huemules, and the E side of the inlet. The anchorage is 0.3 mile from the edge of the banks, in a depth of 40m, with the SW extremity of low and swampy ground, extending S from the N entrance point of the river, bearing 311°. Local knowledge is necessary.

Surgidero Raul (47°49'S., 73°42'W.) is an open roadstead 1 mile SE of Punta Lucia, the E entrance point to Estero Steffen. It lies close on Bajo Raul, which has depths of from 10 to 24m, good holding ground. The anchorage can be identified by a white landslide on the side of a mountain, rising 1.7 miles NE of Punta Raul (47°49'S., 73°43'W.). Vessels with local knowledge can anchor 0.1 mile offshore with the white landslide in

line with a small rocky point, bearing 043°, in depths of 10 to 15m, mud.

The Rio Baker, the principal river in the vicinity, flows through a delta into the E end of Brazo Norte. The river is navigable by small craft for 38 miles from its mouth. A pilot should be obtained locally.

Surgidero Arturo (47°50'S., 73°39'W.), the best anchorage off the delta of the Rio Baker, lies on the E side of Punta Casas. Vessels with local knowledge can obtain anchorage 0.3 mile offshore, in depths of 16 to 20m. The seaward edge of the delta is steep-to, and soundings give little warning when approaching it. There are some storehouses and dwellings near the anchorage.

Ensenada Tortel, which is deep, lies on the S side of the delta of the Rio Baker and is entered N of Punta Acosta (47°51'S., 73°36'W.), the N entrance point of Canal Montalva. Caleta Tortel, which forms the N end of Ensenada Tortel, is entered E of Punta Mancilla, 0.7 mile NNE of Punta Acosta. A light stands on the highest point of Punta Mancilla, while a beacon stands on Punta Gisela, about 0.3 mile SW of Punta Mancilla. Anchorage may be obtained 183m NE of Punta Mancilla, in a depth of 22m. A better anchorage in bad weather is in a cove, outside Caleta Tortel, between Punta Mancilla and a naval signal station, where a vessels stern can be secured to the shore. Both anchorages are well sheltered.

8.89 Puerto Gunther (47°55'S., 73°30'W.) is entered 0.5 mile E of the SE end of Isla Barrios. Vessels with local knowledge can obtain anchorage 0.5 mile inside the entrance, in a depth of 20m.

Estero Mitchell, on the N side of Peninsula Videau, is entered between Punta Lindero (47°55'S., 73°34'W.) and Punta Quillota, 1 mile SE. The inlet extends for 12 miles ESE to the mouth of the Rio Brava. The inlet has a least width of 0.5 mile and is deep throughout.

Puerto Velenzuela (47°56'S., 73°32'W.) is entered 1 mile E of Punta Lindero, and lies NE of Punta Quillota. Anchorage may be obtained towards the S shore in the entrance, in depths of 31 to 44m, mud. Depths of less than 11m extend 0.5 mile from the head of the cove and 0.2 mile from the NE shore. The holding ground is good, but during NW and W winds, anchorage in Puerto Gunther is to be preferred. A shoal, with a depth of 1.2m, lies in the middle of the cove, 0.2 mile from its head.

Caleta San Miguel lies on the NE side of Estero Mitchell, 1.5 miles SE of Punta Lindero. It affords an anchorage to small vessels 91m SSW of the creek, which flows into the cove, in a depth of 27m, mud.

Caleta Laguera (48°01'S., 73°28'W.), on the S side of Estero Mitchell, is entered 6.5 miles SE of Punta Lindero. Small vessels can anchor in the middle of the outer part of the cove, where it is 0.2 mile wide, in a depth of 35m. When approaching the anchorage, keep SE of a mid-channel line to avoid a dangerous rock, which is awash.

Caleta Yungay, 2 miles NE of Caleta Laguera, affords anchorage to small vessels. There is also an anchorage for one small vessel, with local knowledge, in Surgidero Freddie, on the S side of the head of Estero Mitchell, off the mouth of the Rio Bravo in a depth of 51m, but it is not recommended.